THE

# SOUTHERN AGRICULTURIST.

MAY, 1839.

## PART I.

### EDITORIAL AND ORIGINAL.

To the Editor of the Southern Agriculturist.

*Dear Sir*,—I have been directed by the Agricultural Society of St. John's, Colleton, to send you for publication the enclosed letter from Mr. John La Roche, of St. Paul's Parish, on the subject of the preparation for planting the slip potato. I do so the more willingly as I consider them the most valuable root that is planted—from the small expense and trouble attending their production and the great yield which they return. It is seldom that we can get before the public such good authority from long and successful practice.

Respectfully, &c.

D. J. TOWNSEND,
*Cor. Sec. St. John's Agr. Soc'y.*

*Cultivation of Slip Potatoes.*

*Dear Sir*,—In consideration of your Agricultural Society having politely invited me to attend its meetings for several summers past, and believing that I have been somewhat benefited thereby, I think it but fair that I should make an effort to give any information that may possibly be of service to either of the members. And as I have generally succeeded in making good crops of the sweet potatoe, I will give the mode that I have pursued, in hopes that if you adopt it, less yankee corn will be required on your otherwise favored island.

Respectfully your's,

JOHN LA ROCHE.

St. Paul's Parish, Feb. 22, 1839.

As to the root crop, I believe you all plant as I do, one task to the hand, and mostly of reds, which ought to last from the 1st of August to about the middle of November. Last year I went back to the old practice of putting the seed only three inches apart. The patch was on high poor land, well manured with marsh in the alleys, and the yield was very good. They lasted till the 1st of December. But as you have had very minute and proper directions, by a writer of your island, in the Agriculturist of April, 1836, I shall confine myself to the slip crop. The land for this crop ought to be tolerably high and dry; listed up as soon as you have finished your cotton and corn land, twenty-two or twenty-three beds to the task, if level. When you are done manuring every thing else, immediately commence making a collection about the centre of the patch of the necessary quantity of manure for this crop. Thus, a layer of salt-mud, then a layer of oxen-pen or stable litter, then cotton seed. And again, mud, compost of any kind, then cotton seed; and so on till you are sure there will be enough for the whole, at the rate of about one and a half bushels to each task row. About ten days before your vines are ready, strew this manure on the list, and cover it lightly with the hoe, then run a bar-shear plough twice in each alley, throwing the dirt to the list. When the planting commences, I am particular in requiring that the vines be covered by putting from seventy-five to eighty hills on each bed, with only a hoe full of earth if the weather be favorable, and patted directly on the top. And here I must remark, that I attribute my success mainly to the large number of hills on the bed. I was so taught in early life; and I do not recollect any year that my potatoes were gone before the 1st March. The last year, which was as you all know, too dry for a full crop, I made nine hundred and seventy baskets from ten acres, besides two or three hundred bushels of seed where I reside—which will last the negroes, horses and poultry till about the 10th of next month.

My eating potatoes are kept in a common cellar—well dryed before used, and a smoke is daily made for two or three weeks after—very few rot.

A cellar has this advantage if no other, that by leaving six or eight feet open at the end, the door is protected from the weather, and a convenient place is provided for

weighing off the allowance,—which, by the bye, I have found to be the fairest and quickest mode of giving out allowance. Forty-three pounds of clear potatoes is a half bushel, and consequently a week's allowance for a grown negro.

Respectfully submitted by

JOHN LA ROCHE.

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## *Pruning of Peach Trees.*

*Mr. Editor*,—The subjoined article, from a foreign work, rarely seen in this country, will be found important. By presenting the same on your pages you will oblige

Your's, respectfully, A. J. R.

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In the first season after planting out a young peach-tree, where it is intended that it should remain, if it is a strong healthy plant, rub off all the buds that are within eighteen inches of the ground, and just before the remaining buds begin to break, shorten the leading shoot to five healthy wood buds, cutting close to the fifth bud, in a sloping direction upwards. If the plant succeeds, and all the buds are developed, there will then be one perpendicular shoot, and four lateral ones.

The next season shorten the leading shoot to five, or seven healthy wood buds, according to the strength of the tree, leaving one tenninal, and four or six lateral buds. If the tree does well the ensuing season, the head may be said to be formed; consisting of one perpendicular leading shoot, and twenty-four lateral shoots. The next year the same process may be repeated, after which, a different method should be adopted.

When the head of the tree is fully formed, and the branches well arranged, endeavor to keep it in the same shape; shorten none of the leading shoots, nor any that are well situated or well furnished with blossom buds, unless they are too long or growing greatly out of bounds, or weak, or unhealthy; in such cases, cut them back to a healthy wood bud. As the buds begin to break, and the leaves to expand, rub off all the wood buds that are out

of place, such as are likely to send strong shoots into the middle of the tree, interfering with the main branches.

When the young shoots are advanced in growth in the months of March and April, if any of them are found to interfere with more desirable branches, cut them clean out, cutting as close as possible to the branches from which they issue; frequently look over the trees between February and June, and protect and encourage all the young wood that is intended to produce fruit the next year, and remove every thing else.

The fourth season after planting, or when the tree has attained to the desired height, in the pruning season shorten none of the branches that are to bear fruit the ensuing season, cut the perpendicular leading shoots to five wood buds; and if the tree is well furnished with lateral branches, and these arranged in a regular manner, cut back every other one of them to seven promising wood buds; this will generally be below all the blossom buds, but the branches so cut down will furnish a good supply of bearing wood for the next season, when those which produced fruit the preceding are to be treated in a similar manner; a continual supply of good bearing wood may thus be obtained.

Trees do not always succeed so well as the owner wishes, nor as here described; frequently some of the branches are blighted, or diseased, or broken; if diseased or blighted, cut them clean out; if broken, cut below the wound, and endeavor to fill up the vacancy by shortening some of the nearest young shoots; if this be done in March or April, by merely pinching off the leading bud, the gap may be filled up the same season. Keep the tree clean, let every part of it be well furnished with bearing wood, but with no more than is necessary; let the branches have room to grow, without interfering with each other. Never shorten the fruit-bearing branches, unless it can be done to advantage, and then always cut close to a healthy wood bud. The peach tree bears fruit on the young wood that was produced the preceding year; if that be cut off there will be no fruit at all. The wood that is produced in the first part of the season, when there is a good supply of wholesome nourishment, is for the most part healthy, with strong wood and blossom buds; as the sap becomes exhausted, and the veins set in, the ends of the shoots become weak, producing buds, with only one wood-bud, and that at the end of the shoot.

If the terminal bud be cut off, the shoot will die down to the next wood-bud, often to a distance of twelve or eighteen inches; the intermediate fruit will sometimes swell and even ripen, but is always far inferior in flavor to that which is nourished and protected by leaves, the dead stumps give an unsightly appearance to the tree during the whole season, harbor insects and engender disease; and when cut, or broken off, the wounds do not heal over in a healthy manner.

Strong rampant shoots that are exhausting the nourishment which others require, shorten early in the season to four or five buds, and they will produce good bearing wood to fill up vacancies, if there are any; if there are not, cut down the shoot clean out; two or three such rampant shoots, if suffered to remain, are sufficient to spoil the best peach tree in the world. They are frequently caused by one or more of the roots having penetrated into the subsoil. If the tree be young, if not more than two or three years standing, take it up, and spread the roots in a horizontal direction, which will cause the nourishment to be supplied to the whole tree in a more regular manner. If the tree be old, or too large to be taken up in this manner, then open the earth about the roots, cut the top-root, and supply manure to the roots that are near the surface, this will encourage them to extend themselves in a horizontal direction. As soon as the fruit is all gathered, go over the trees and take out all superfluous branches, and such as were left merely for their fruit; let none remain but those that are intended to produce fruit the next season, or a succession of fruit-bearing wood. Take out all the young side shoots that are produced in the latter part of the season, they are of no use, but serve to deprive the rest of nourishment. Never pull off the leaves with an idea to benefit the fruit; it is not benefited by this practice, but injured by it; if deprived of the nourishment and shelter afforded by the leaves, the fruit becomes hard and ill-flavored. A well managed tree has not a leaf to spare.

J. W. MASTERS.

*Remarks on former Articles—The Monticello Society—Agricultural Convention—Large yield of Corn, by Dr. McConnell—Agricultural School Books—Salt as a Manure for Corn—Cultivation of Water Melons.*

*Mr. Editor,*—As you were satisfied with my remarks in your March number, I herewith furnish you with a few more after the same manner.

I am glad that my observations upon the "proceedings of the Monticello Society" were coincided with by you, and I flatter myself that the truth of them is already beginning to show itself throughout the State. If our planters will have their interest represented, they must represent it themselves; and I cannot express to you how glad I am to see from your April number, that the Agricultural and Police Society of James' Island have in view of this resolved to call an Agricultural Convention sometime during the ensuing winter. It is precisely what I have been long advising to my friends. Let all the Agricultural Societies in the State send delegates to meet at Columbia a week previous to the meeting of our Legislature in November next, for the purpose of considering our Agricultural condition, and of memorializing the Legislature upon the subject. From those Parishes wherein there are no societies, let delegates from among the planters and farmers be sent, and thus a large and respectable body will convene, whose proceedings cannot fail of proving serviceable to the great cause of agriculture. The merchants, from all portions of the Southern country, have but recently held a highly interesting meeting in your city. Their proceedings will do great good; it will awaken inquiry throughout the country, and the interest of every one will be advanced. Let our farmers act with the same determination to do for themselves, and I will have been very much mistaken if as much will not be done for agriculture as has been done for commerce. In my section of the State, I shall see that this matter is not overlooked, and I trust, Mr. Editor, that you will not let your readers lose sight of so important a move for the advancement of their interest.

"A Planter" in your March number has proved conclusively to my mind, the great importance of our planters attending more to the cultivation of corn than heretofore. His calculations are exact, and any one who

runs may read their truth. This practice, Mr. Editor, of planting an entire crop of cotton and planting no corn, is the system which has been ruining the State. Every thing had languished under it, and until our agriculturists awake up and calculate the matter as "A Planter" has done, they must become the loosers by it.

The fact that very large yields of corn might be had from a few acres, under proper management, has been well proved and authenticated in the case of Dr. McConnell, as published at page 119 of this volume. We there learn, that with proper attention, eighty-three bushels of good corn might be raised to the acre. This, though a common yield at the north, has heretofore been considered quite beyond the capability of our Southern soil. But the thing has been done, and with like attention might be done in almost every instance. To me, Mr. Editor, it has always appeared the best policy to plant less, and to plant better. Facts upon facts might be adduced to prove that one acre, well manured and well prepared, has produced as much as six attended in our ordinary way. Let our planters reflect upon this, and resolve to benefit by the hint; and though they may have already planted their crops, it is not yet too late to try an acre or two after the manner of Dr. McConnell. Our lands, like our people, are of a generous disposition; but if they be starved almost to death, like the best of our people, they will become useless and profitless.

The article on "Agricultural School Books" is just in season for those who will attend our Agricultural Convention. The furnishing of elementary school books on agriculture, cannot be too much regarded and looked after. In my younger days, I declare to you, Mr. Editor, I felt the want of nothing more than some book that would in a concise and simple style afford me the means of acquiring some knowledge of the profession in which I was about to embark. I looked around me and saw the merchant, taught his business by several years learning at the desk—the mechanic served an apprenticeship in the shop—the lawyer, the physician, the divine, were all taught the elements of their art from some book suited to their professsion. In agriculture alone was there a deficiency. When I came into possession of my estate, it was just after my return from college. I knew more of every thing else than I did of agriculture. I had never handled a tool, yet I knew from the mechanics I had

studied, how the carpenter, the mason, &c. were to work. I could tell you how broad cloths, and linen, and silks were manufactured for market—but knew nothing about the mode of preparing any of the raw materials of which those articles were made. I was to take possession of a plantation—and in truth let me declare, that I knew not one soil from another, except in the most common instances. I could not distinguish one tree or shrub from its neighbor, and as for their properties, they were a thousand times more unknown to me than most of the quantities of Algebra. I was to take possession of near eighty human beings, and to direct their labors so as to make the soil provide them with sustenance, and clothe them; yet, unless for my driver, I knew not how to plant corn or any other plant that would yield them and myself a living. The most ignorant slave on my plantation knew more of these matters than I did—and yet I was to take possession of them—to become their master—to have them look up to me, and to direct them. With all my collegiate learning, how absolutely deficient I felt in my new situation, you may well imagine. I was deficient in the merest elements of my profession, and ashamed to ask of my neighbors what knowledge I wanted. I wanted books to inform me, and at that time knew not where to find them. The case is a little better now—but then we are still wanting in the elementary parts of our agricultural education. We want proper books to inform us—yea, to teach us—such books as are furnished every other profession now taught in the schools.

The article recommending salt as a manure for corn, corresponds with my own experience. Permit me to suggest to your readers that it is not too late to apply the salt around their corn. It may be beneficially applied as late as the middle of June. Two years ago my corn was suffering very much, apparently from drought. I had planted it on a bed, under which much stubble and vegetable matter had been listed, and these to all appearance had not as yet been sufficiently decomposed, from which cause the corn seemed to be suffering. Reading in one of your numbers of the beneficial effects of salt, I procured myself thirty bushels, and applied the same at the rate of one gill to the hill. In three or four days after, a visible change was produced in the plants. Though they had no rain upon them, their leaves began to assume a green and fresh appearance, and from the

beginning to end, the corn looked better than all around it. I did not measure the yield in contrast with the other corn, not salted; but am convinced that it was superior to it by 10 or 15 per cent. Let me advise your readers to try the salt. If they want scripture authority for it, let them read St. Luke, chap. 14, verse 34, where our Saviour himself informs us what a good thing salt is for the earth. "The cultivation of water melons" is good, and I hope the plan recommended will be followed to the benefit of our markets this season.

Trusting that your readers will excuse the space my remarks may occupy, I remain as ever,

A READER.

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### *Indian Corn cultivated for Fodder.*

*Mr. Editor*,—In your last number was an article recommending the cultivation of Indian corn for fodder, and not with the view of saving it for the grain. I was highly pleased with the plan, having tried it myself. During the drought of last year, seeing that my blades would fail, I determined to plant something that would serve as a substitute. As the reason had far advanced, I knew that oats would not turn out well, and was accordingly advised to try Indian corn. I did so, and here is my mode of cultivation.

I had the land well broke up in ridges three feet apart, by running three furrows of a shovel plough. A fourth furrow was now run in the middle of the ridge the whole way through, so as to form a trench for the seed, and in this trench the corn was sowed about as thick as oats. The seed was then covered by running a small harrow over the ridge, set quite close, which operation had the effect of pulverizing the lumps, and at the same time covering the seed. I now broke up the space between the ridges with the same plough used before—and in this state left the seed to sprout. As soon as it was up, and had three or four leaves, it once more broke up the spaces between the ridges—throwing the earth from the corn—and two weeks after, I repeated the same ploughing, throwing the earth up to the corn. This was all the

working it got. The corn grew vigorously—*fired* but very little, and shot up rapidly into tassel. As soon as it arrived at this latter stage, I had it cut down with a scythe, and cured as hay is usually done. Having more vegetable substance in it, it of course required a much longer time to cure. Three or four days, however, of sun, served my purpose.

I would here observe, however, that it was all cured in the field where it was cut. My plan was to cut in the morning, after the dew had risen—to spread the corn out to dry until three or four o'clock, during which time it was turned once or twice, after which hour it was carefully put up in small stacks to be spread out as above the next day, and so on until cured. As soon as the blades and covering about the stalk is well cured, the fodder may be housed—for although the stalk may not yet be dry, the blades will absorb its moisture, and thus prevent any moulding in the fodder.

I speak with strict regard to the calculation in every particular, when I say, from four acres thus planted, I made four times as much substantial fodder as ever I made from a like number of acres of oats or grass under the most attentive culture: and if to the calculation I add, how much further the same weight of this fodder went in satisfying my horses, than the oats or grass, I may safely say that the balance in its favor over the other were as *six* to *one*.

In housing or stacking the fodder, the stalks should be so placed as to have one layer with the tassel part one way, and another with the tassal part the other way, or to be better understood, one layer of tassels on the right, and then another on the left. The object of this is so to dispose the blades and the stalk as to let the one absorb the moisture of the other.

In feeding out the fodder, I always cut it up with a common straw cutter; in which manner, the horses will refuse to eat no part of it.

It takes about three bushels of seed to sow an acre; and every thing considered requires about twice the labor as in cultivating oats or grass for fodder; but I again repeat that on the same portion of land, four times the amount of substantial fodder may be produced from the one than from the other.

It is in these little matters, Mr. Editor, that as an agricultural people, we are to prosper; and let me earnestly persuade your readers who have not tried this experiment not to let this season pass by without doing so. I do not advise them as your Savannah correspondent does, to cultivate the Indian corn for fodder, in place of our old plan of collecting blades; I only ask them to do both, let them only try an acre, and if any sin grows out of the experiment, let it be visited upon the head of your friend and well wisher.

ABBEVILLE.

We recommend the above article to the attention of our readers. Most of our planters have yearly to complain of a want of fodder for their horses and cattle; and it is no uncommon sight to see large quantities of Northern hay going into the country to supply their wants. Where it can be avoided this should not be permitted to occur again. It is not for us to point out to them what a ruinous policy it is to purchase their plantation supplies. They must all have felt it—not only in their broken purses; but more particularly in the disarranged condition into which such a course necessarily throws all their agricultural operations. The planter who has to purchase his plantation supplies, does not only expend the price of those supplies—but also a vast amount of labor, necessary to transport them to his plantation, which not unfrequently, from the particular time at which it is required, is the direct means of his losing a great part of his crop. In view of obviating a part of this evil, we recommend the adoption of the plan pursued by Abbeville. We however throw out the suggestion, whether it would not save some labor and time, in planting the Indian corn broad cast instead of in drills, as recommended by him. We are aware that the yield will not be as great, but whether it will be so far inferior as not to compensate for the extra labor, is the point we would like to draw attention to.

That both plans might be tried, we present the following article on the subject from the pen of the celebrated agriculturist, John Hare Powell, Esq., published several years ago, and practised by him, as we understand, with great success ever since.

"*On substitutes for Hay—Indian Corn sown broadcast on Rye stubble and sward—its product and value.*

"Powelton, Feb. 1, 1827.

"After a rye crop had been taken, the richest part of 'the field was ploughed—four bushels of Indian corn was 'sown and ploughed under, with a very shallow furrow; 'an adjoining acre, which had not been previously plough-'ed, was sown with the same quantity of the same corn, 'which was in the same manner ploughed under with 'the stubble—it was all harrowed and rolled. The land 'had been limed five years since, and was in fine tilth. 'The corn vegetated regularly—covered the ground 'thickly, and put out tassels when five feet high. It was 'mown when in full blossom—treated exactly as hay; 'but from the succulence of the stalks, it required much 'more time and attention, before it could be housed.

"I found my cattle to-day contending for it eagerly, 'when portions of it were thrown before them in the 'midst of the *most fragrant* clover hay. The quantity 'was estimated at two tons per acre.

"Upon another field, which, after having been fifteen 'years in common, was manured with oyster-shell lime 'at the rate of an hundred bushels per acre, I caused six 'bushels of corn to be sown immediately after the sward 'and lime had been reversed. The land was harrowed 'closely, and heavily rolled—the crop was mown and 'managed as that of the last field—its product was esti-'mated at two tons and an half per acre.

"In another part of the same field, manure taken '*fresh* from the stable, was spread upon sward which had 'been limed as in the last instance. About three bushels 'of Indian corn were sown on the dung, and were 'ploughed under with the sward, which was after har-'rowed and rolled. Fewer seeds were used, as it was 'supposed the manure would cause most of them to vege-'tate vigorously.

"This piece of land, although much shaded by a close 'row of trees on its southern boundary, produced more 'abundantly than the last. It was cut and managed as 'before. I am inclined to believe from the results of all 'these experiments, that four bushels of corn in that state 'of soundness, in which it is usually found, after having

'been thrashed some months, is the proper quantity, or 'that three bushels from selected ears, would be suffi-'cient. It must be observed, that the latter part of the 'season was unusually favorable to the growth of Indian 'corn."

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*Advantages to Charleston, and South-Carolina, to be derived from a Direct Trade; with reflections on the Rail Road and Canal Communications of the South. With a Map.*

Our city, for some weeks, has been interested with a system of internal improvement, which it is said was some years past reported for the South by Gen. Bernard, then agent for Congress, and, at a time when that body was engaged in a general plan of national road building. If we remember correctly, the great Cumberland Turnpike is the only fruit of that brilliant feint. Having secured by that thoroughfare, a winter supply of flour and bacon from the West, the Eastern States found it expedient to forego the system, and the *Canal of the Savannah*, with a turnpike from the Altamaha to the Alabama river—the Southern improvements to which we have alluded—were precipitately abandoned.

But the disciples of Dewitt Clinton have the example of New-York always before them. The States of Georgia, Tennessee, North-Carolina, and South-Carolina, will build the canal, and the towns of Montgomery, Columbus, and Charleston, will build a rail-road upon the route of the proposed turnpike. We speak thus positively, for the map appended to this number of the Agriculturist, has been published upon an enlarged scale in the city, and it appears to have excited a general acclamation—responding to previous movements made by Columbus, St. Joseph, and Montgomery.

This, in relation to the road: and you will soon discover the propriety of having the road precede the canal, for by an interesting argument which we are about to detail, you will find that the Direct Trade of the South must predicate upon the concentration of our great staple cotton. This trade must be diverted forcibly from its present channel to New-York, or it must continue to pivot upon our Northern emporium, and appropriate to itself secondarily,

our rail-roads, canals, and steam-boat rivers, as subsidiary to the interests of that place. The building of the Savannah River Canal, cannot, however, be very long deferred—the meats and grains of the West must be brought during the winter at least, to our Southern sea-board. In the year 1829, Major Bache, of the Topographical Engineers, made a *thorough examination* of this canal route, and within the last week, copies, estimates, and plans of construction of this important work have been received in Charleston from Washington, strengthening the Old City in the conviction, that it depends upon herself to decide her rank among the commercial towns of the Union. It requires but 128 miles of canal to unite the Savannah with the Tennessee. Contrast this with 672 miles, connecting New-York with the Ohio—or 334, Washington with the Ohio—or 239, Richmond with the Ohio, and this for six to seven months of the year only. It is an honor to the State of Georgia to have been the first to grant a charter for this immense perpetual trading avenue from the South Atlantic to the West. South-Carolina, we are happy to state, has already responded to this move, and had time permitted, during the last session of her Legislature, a similar charter would have been granted. North-Carolina has 70 miles of interest at stake, over a very favorable portion of the work—and when we reach Tennessee, we feel satisfied that she will hail it with six times six hundred thousand dollars, which she has so handsomely advanced to our travel road through her dominion.

There is a second reason why our cotton thoroughfare should be opened before the grain. The State of Georgia has already cut her way to the West. In a few months, the towns of Macon and Rome will be united by a rail-road of 150 miles. This calls for a correspondent expedition on the part of the sea-board city, that would transact the exchanges of this trade. With the completion of that portion of the cotton road, from the Ocmulgee to the Flint river, a distance of 66 miles; and the establishment of a line of steam-boats connecting with it, Charleston will have prepared herself for her attempt at direct trade, and all future improvements be made to depend upon the success of this attempt.

That she will be enabled to accomplish this much, there is no doubt. The whole amount cannot exceed a few hun-

dred thousand dollars, and all classes of her citizens are interested in the effort. The cotton factor must follow the cotton planter to the rich farms of South Georgia and Alabama. The commission cotton merchant must oblige the factor to concentrate his cotton, that a stable price may be established. The commission auctioneer must furnish our cotton boats with return freights of merchandize. The wholesale merchant must have his retailers upon the Gulf, in Alabama and in Tennessee. The rentalist must bring his tenants from all portions of the West, to occupy his tenements, which he has so proudly reared in emulation of the times. The entire population of Charleston, which, through Council, has pledged itself in a heavy debt to the State, must find its interest in countenancing the enterprising. The bankers and insurance officers—the representatives of the aggregate interests of the whole community, are aware of the ruinous losses upon merchandize and tonnage around the Keys of Florida—they are equally aware that money power is transmissible. In eighteen months capital must be brought from some quarter of the globe, to accomplish the re-establishment of Southrn trade. Should it come from abroad, it will seek an independent channel. Should it be established for this purpose at home, it will be subjected to those thousand jealousies which attach to all our political creations.

Fortunately we repeat the amount, $500,000, calls for no such effort. Suppose the city divided into the five integral interests which we have noticed, viz: the factors and commission cotton merchants—the wholesale and retail merchants—the rentalist and wharfingers—the bankers and insurance companies, and the capitalists of the city generally, with many of our wealthy planters, who have evinced a deep interest in the object proposed. This gives us $100,000 for each integer, and subdividing these into one hundred portions, we have $1000 the share of each individual or firm, and $100 the instalment, should the road be completed in ten months from the date of its commencement. This detail has been necessary to prove that it will be our own faults if the next eighteen months are not made the most important in our city's annals—the celebration of her commercial agency for the broad West.

We have been thus explicit upon the general subject of improvement, that the positive principles upon which

this improvement is based, may be the better understood. In addition, we will give a rapid description of the map attached, and the objects for which it was prepared. The first characteristic is the important line which divides the labors of the South and North; or the black from the white; the malaria from the healthy sections of the Union; and many will be surprised to find the confederacy so equally divided. The second is, that Charleston stands upon the Atlantic in prominent relation to this interest, and the western termini of her improvements are more easily united with her, than any other city upon the whole extent of our Eastern coast. Take the respective distances of the most important of these points. St. Joseph, upon the Gulf of Mexico, Montgomery upon the Alabama, and Gunter's landing upon the Tennessee river, the great eastern feeder of the mother of rivers. In six days our commerce is upon the Gulf; in seven, upon the Alabama, and in nine, upon the Tennessee river. The first, over a rail-road of less than a hundred miles; the second of two hundred, and the third of two hundred and twenty, and with all the certainty of steam.

The third prominent object is the Savannah River Canal; the boats from Savannah and Charleston are thrown by this work upon the Tennessee at its junction with the Clinch river, and a combined rail-road across the Cumberland mountain of about eighty miles, unites this canal with the point on the west side of the Cumberland ridge, at which the general road west, deflects to Nashville and Cincinnati. This is an important feature in our system of improvements west. The rich States of Kentucky and Tennessee are desirous of reaching us, and if they will so dispose of their resources as to bring them to bear upon this common point in crossing the Cumberland mountain, its passage can be effected with comparative ease. By this measure our canal will be not only supplied with freights from the navigable waters of the Cumberland river in twelve hours, but Louisville, by building to this point, would be on her way simultaneously to Charleston and Memphis—Nashville to Charleston and Washington, and the onward road from St. Louis, be the straightest possible from the Atlantic to the Great Missouri.

We have now prepared the reader for the discussion which we promised on the subject of Direct Trade. It

must be premised, that in Charleston it is boldly asserted that this trade is now in an unnatural channel, passing as it does through New-York, and that the South can, with ease, divert it. The disputants were a cotton merchant of eminence, and an engineer, whom it seems is now engaged on the construction of the rail-road from the Ocmulgee to the Flint River, a charter for which was granted by the State of Georgia to Thomas Spalding, Esq., for a term of ninety-nine years.

The merchant after listening for some time to an account of the character of the work—the time it would require to build it, and the objects to which it was to be applied, asked if the engineer was certain the cotton item in the business of the road was not exaggerated, for it appears that the crops of Middle Alabama, of Florida, and of West Georgia, were all to be transported to the steam-boats of the Atlantic, at the great bend of the Ocmulgee River, a point some four days run from Charleston.

The engineer said no. The rules of trade were fixed, and all based upon this simple principle—*the shortest and cheapest possible line of reciprocal indebtedness.* The grower of cotton in the county of Montgomery, Alabama, sets his crop for the worker of cotton in Europe—it must pass through the hands of the manufacturer before he can dispose of it, even to his nearest neighbour. It is reasonable then to suppose that he knows the shortest and cheapest route to Great Britain; he actually employs me, added the engineer, for the purpose of obtaining this information for him. If you will take your map you will find that Montgomery is some two hundred miles from the Atlantic—the road from Montgomery terminating at the Ocmulgee River. A cotton factor in Charleston writes my planter in Montgomery county to hold his crop in store to his order; of course, aiding his necessities by a fair advance on his year's labor. The planter does this, and when our factor has "cleared the store" of some more importunate cotton grower, on goes the order, and in seven days the crop is in Charleston, and the whole transaction here ends.

But, said the merchant, why should not this transaction be between the factors of the Gulf and your Montgomery planters? Why, replied the engineer, for this

simple reason—it is not the surest, shortest, and cheapest route to Europe. Besides, the cotton planter must have a stable price for his cotton if possible, and there never can be certainty in the transactions of the Gulf cities. They are all drawing from each other, and it is impossible, through their instrumentality, that a market, capable of giving stability to the price of cotton can be effected. Look to the systematic moves of the State of Mississippi for the last two years against the cotton exports of New-Orleans—chartering a cotton bank of $15,000,000 in one year, and passing laws the next, giving $10,000,000 towards the construction of the city of Mississippi, on the Gulf, to be a rival of New-Orleans. The ease of passing from the Mississippi River to the Gulf by the Amite and Iberville Rivers, is generally known.

Now, said he, this difficulty does not exist on the side of Charleston. All the States east of Mississippi State will unite in concentrating upon her, until the cotton trade is fixed, and cotton speculation destroyed. He referred to the recent Convention in confirmation of this opinion.

And do you really believe, inquired the merchant, that there is enough cotton in the States to which you refer, to accomplish this end.

Look to your statistics, said the engineer—there are 1,800,000 bales produced, and Charleston can control 1,000,000 of this amount. The export from the whole Gulf to foreign ports, came in the year 1838, to 900,000 bales, without the inroads which we propose upon it.

But are you sure that the freight upon these inroads can be met by cotton?

Of course—take the price of a bale from Columbus to the Atlantic, sometimes nine dollars and averaging five. Columbus is but 130 miles from the Ocmulgee bend; charging one dollar for this distance, and one fifty for its transfer to Charleston, and we have three dollars and fifty cents, actually saving one dollar and fifty cents per bale, and having perfect certainty for perfect uncertainty. The same rule for Montgomery and Gunter's Landing, holds equally good—saving too the city storage, for it may be kept to the last hour at the farm. This is the basis of our claim for a concentration of cotton in Charleston—for let us come back to the line of reciprocal indebtedness. How much cotton per month do the manufac-

turers of Europe require? Once establish this amount, and it only remains to Charleston to keep up this *constant line of supply*—the factors drawing upon the Western cotton planters, as before alluded to.

But, said the merchant, the cotton houses of Liverpool can concentrate there as well as in Charleston the cotton required. Ah, rejoined the engineer, this is the very subject that I would bring you to issue on. While Charleston sells 200,000 bales per annum, Savannah not much more, Mobile 300,000 bales, and Pensacola much less, the cotton houses in Liverpool by storing 200,000 bales, keep the price in these small cotton towns at their own rates, particularly when the market of New-Orleans, with its six hundred thousand bales plays into their hands, through the aid of a nefarious paper money power, centering at the North. In fact, should our factors in Charleston combine, and obtain the support of our banks, they could not, by retaining one whole year's crop, affect at present the prices of such houses in Liverpool. The game on the part of cotton speculators is simple. While cotton is at six to seven cents, they lay in immense stores of it, and having shipped a fair proportion to Liverpool, at the very doors of the manufacturer, they pitch the price of the new year in this country at the highest possible rate, so that the prices of the new crop, and the stock on hand, bought in for six cents, may be disposed of to the factories at a fair average. These are facts said the engineer which our daily experience corroborates. Now, continued he, the move proposed by this road from the Alabama River to the Ocmulgee, is to concentrate upon Charleston, our oldest Southern town, such an amount of cotton as will give to our factors an opportunity to control the price of our great staple; placing thus the cotton planter on the footing of the rice planter, who knows by the number of bushels in his barn the value of his year's labor.

At this point of the argument, the engineer appeared somewhat doubtful of the position, that the merchant with whom he spoke, held on the subject of cotton speculation, and commenced to excuse himself as professionally interested in the welfare of a class of the southern community, which believed itself aggrieved by the commercial arrangements of the day. The merchant, however, proved himself a true son of the South, and calmly asked

how the factor of Charleston would procure the forty millions of dollars to purchase the millions of bales which the engineer roundly said could be brought to Charleston.

Ah, said the engineer, there have our planters shewn themselves equally agrieved. They have passed in our Legislature laws for the increase of currency, laws by which they may employ their surplus capitals under limited partnerships—in fact, done all in their power to place the fiscal means of the South upon the broadest possible basis; and when they come to inquire the fruits of their legislation, they find it comprised in the single sentence, "New-York was too strong for us, and we were obliged to become mere agents for that vast emporium." No, said the engineer, as long as you use your banks as money making machines only, and your principal merchants become money exchangers, well may a distinguished son of Georgia say, "until the skepticism of the Southern merchant is dissipated on the subject of Southern trade; until he feels that the paltry business of dabbing in exchanges from Charleston to New-York, and from New-York to England, is unbecoming the character of a Southern merchant, the South will never be disenthralled from the yoke of Northern capital, nor the tide of commerce flow onward to our Southern shores."

But, retorted the merchant, the planter passed the law, but has not made use of it; he will not vest his funds in commercial houses, nor enlist his sons in commercial business. Our capital stands the same.

Well, may it be so, rejoined the agent of the planter. First though, to sound argument again. "You say that we must have forty millions of dollars to buy the million of bags to be concentrated upon Charleston, or the cotton will not come here." It is not so. If you can positively say to the manufacturer of Europe that this amount of cotton will be in Charleston the coming year, and that you want him to redeem it by an export of forty millions worth of goods, you making it equally clear that you can dispose of this amount of goods; rest assured that there will be no difficulty in closing the arrangement. But, added this bold dealer in millions, how can you do this, when you are ignorant that in eighteen months the communication from Charleston will be opened to the Great West—that the two hundred miles from Macon to Gunter's Landing, a distance little greater than that from

Charleston to Augusta, will be completed by Georgia in that time. This your merchants must learn first—a work accomplished by the Georgia planter. But again,—you say that the factors must have money to send for the cotton to Alabama, and you are frightened at the sum of forty millions. Where did you obtain the funds by which you hold 300,000 bales? The State of South-Carolina authorized you to raise it; and if the State is satisfied that you can concentrate the increased amount of cotton spoken of, she will willingly give you the capital; and more—all the Southern States, through their branches of your Western Bank, will aid in the enterprize. No—you allow New York to wield a capital of one hundred millions upon our annual cotton crop of fifty millions, and thereby sustain a spurious white population at the rate of fifty millions upon the sweat of your negroes' brow. When it is asked why this is allowed, it is said, "the natural advantages of New-York force it upon us." What was New-York twenty years ago? An old Dutch town. Has her canal made her? Look to our communications to the West—*one hundred per cent. better.* When you shall come to take position on these principles, the capitals and sons of the Southern planter will be induced to seek the commercial interests of Charleston.

At this position of the engineer, the merchant could not restrain marks of incredulity—it was using millions with a vengeance to it—rearing white drones upon the black labor of the South. This gentleman told him that the subject was now in the South, he believed—but we were criminal in our ignorance. He boldly asserted that the city of New-York sustained upon her canals and roads, a population that enabled her actually to stimulate the productive power of the Western States—the fruits of their labor being expended in the Eastern, and its proceeds laid out in goods at the city of New-York to supply Western consumption. It is thus, he contended, that the productions of the Northern States have swelled in the last few years to so enormous an amount. Think, said he, of Massachusetts exporting 90,000,000 worth of annual manufacture. He explained this position by narrating the plan adopted by a contractor in the rail-road service of Georgia. When this contractor reached the wilds from whence the Indians had been just removed, and where the white population was consequently scat-

tered—he, without a moment's delay, posted to Augusta, and laid in a heavy store of goods. He returned with it to his post, and in less than a fortnight after, his merchandize had drawn together a goodly village, and while his laborers were increased upon him by hundreds, their families used up his goods; enabling him, while others worked with difficulty a mile of the road, to undertake a dozen of them. Now said the engineer agent of our cottsn planters, if the merchants of Charleston would emulate this contractor, and assist the Western planters to cut their way to the Atlantic, this latter interest would soon reciprocate the favor by building up direct trade.

The merchant was obliged to acknowledge the force of the parallel, but attempted to make allowances for the health of interior New-York over our back country. The engineer would not allow this, for he had been exposed to the climate of our interior for three years, and knew it not to be surpassed in the world.

The productive capacity of the Northern States was another point that our merchant could not let pass. But on this ground he was jeeringly met.

Ah, said his antagonist, here is where you do not estimate your power. Why do you not make the manufacturers of the North pivot their vendues at Charleston, and prevent their establishing their wholesale houses in Macon and Augusta. You can only do this by wielding your power as the Northern extremity of inland steam navigation, and yet you have let your steam-boat interest fall into decay. Concentrate your cotton at your wharves—bring the bacon and flour during the winter, from the West by the Savannah River Canal, for it is five hundred miles shorter than the New-York and Ohio Canal, and by this means the Northern coasters will be obliged to come to your market, to obtain *return freights*. On this head, he contended that Charleston was decidedly in error—that her trade with the Northern States was as important as that from Europe, and instead of our stores providing these articles, the up-country merchants, even of Carolina, were forced to go to Augusta for them,

The next point turned upon the necessity of bringing the cotton of the South to Charleston. Why not transact the cotton trade as N. York does, contended the merchant—by exchanges, the cotton going from the other ports, and Charleston supplying the import goods?

The engineer referred him again to the "line of reciprocal indebtedness." The tonnage as well as trade, should of course conform to this rule. Charleston, he contended, must, by her inland steam navigation do away with the coast trade around the Keys of Florida, and thus enable every vessel that comes laden with import goods, to return freighted with cotton, or if from the North, with the productions of the West. Now, said he, on the score of cotton, 1,000,000 of bales would give nearly a monthly tonnage of 100,000 bales, or the freight of seventy large vessels per month. Besides, added he, once establish this line of *perpetual supply* from a point where European capitalists can reach in from fifteen to eighteen days with their steam packets, and the two millions of bales will be brought to *our market*. Do you not know, exclaimed our Engineer, with an emphasis peculiar to the South, that steam-boats will pass from the Mississippi to the Atlantic without going to sea, when once the attention of our country is concentrated on this subject. We are now upon the "premier pas" of the great French engineer, continued he. The Southern Steam-Boat Companies must enjoy the $750,000, which is now paid per annum upon the insurance around the Florida Reefs, and the South Atlantic cities profit by this trade—and Charleston, he again repeated, being at the extreme north point of our inland navigation, must partake of her full share.

As may be perceived, the subject here wandered somewhat from the cotton track, but the engineer had excited the interest of the merchant, and the latter asked him if he really thought that our city had an advantage over New-York, in her trade with the Gulf cities, to the amount of this insurance of $750,000.

The Engineer said, decidedly so, with relation to the goods imported from Europe through New-York; and said he, we must add an equal amount for Cape Hatteras, and not only upon the goods from New-York to the Gulf, but for those consumed by our Atlantic States. This is not all, continued he; on the subject of freight, Charleston's advantages are still greater. The charge from New-York to Charleston is half of the whole charge to the Mississippi—making the dangers of Cape Hatteras weigh as onerously on the consumer of Carolina, as those of Key West with the tornadoes of the Gulf, do upon the consumers of the Mississippi valley. Hence a trade direct from Europe to Charleston, to supply the West, via the road from Macon to Gunter's Landing, and from the great bend of the Ocmulgee to Columbus and Montgomery, will have every advantage over the same trade to New-York, which would have to encounter Cape Hatteras and the Keys of Florida, or tranship at Charleston or Darien. But this your Cotton merchant don't appear to care about, added this agricultural agent—for when the Pearl-street Merchants of Charleston contended, in the late Convention, that they could sell goods imported direct from Europe, for ten per cent. less than those imported by the way of New-York, none of you would respond to this enterprising class of our community. Now, continued he, take goods to the amount of $100, imported direct from Europe—duties to the United States upon these goods are 25 per cent.—add this, and we have $125. Allowing 30 per cent. profit for wholesale importer on $125, equal to 37 50, which added, gives $162 50, the price that $100 of goods costs the Southern planter or consumer generally, if imported directly to Charleston. Now import these goods by way of New-York—first cost $100—duties to the United States 25 per cent.—$125. Allow the direct importer 15 per cent—equal to $18 75 on $125—add this, and we have $143

75. Now the Jobber, with his drummers, from whom the Charleston merchant buys, 20 per cent. on $143 75, gives 28 75—add this, and we have $172 50. The cost of transportation to Charleston, 5 per ct., equal to $8 62—add this to $172 50, makes $181 12. Then for the profit of our own merchants in King-street, 30 per cent. on $181 12, gives $54 33, which added to 181 12, gives $235 45—the cost of the $100 worth of goods if consumed in the city. If in the country, an additional per centage of, we may presume, 30 per cent. to the country merchant. Now taking the cost of direct trade, $162 50, from $235 45. or that through N. York, and we have $72 95 upon the difference of trade.

The cotton merchant said, that the simple assertion of the wholesale merchant of Pearl-street, was enough for him—but there is one question which I have to ask you, Mr. Engineer, said the merchant, for I see that you are a faithful advocate of the agricultural interest of the South—What is the reason why our Augusta cotton does not come by rail-road to Charleston—for if you prove that it can and will, running parallel as it does to a river, I will believe in your great Ocmulgee, Flint, Chattahoochie and Alabama rail-road, which traverses those rivers.

Because, said the intrepid Engineer, you won't allow it; and fortunately for Charleston you dont. Should our rail-road cross the Savannah on the one hand, and penetrate to the wharves of Charleston on the other, Augusta would flourish still more upon the decay of our city, for then New-York would save nearly one dollar and a half on each dray load of goods, which is now thrown upon Augusta, for the supply of West Georgia by our rail-way. When Charleston has opened her trade with Europe and the North, and become the pivot of wholesale business, then will the cotton of Augusta come to Charleston by rail-road.

The Merchant not appearing satisfied, the Engineer continued—What are the return freight cars to bring from Augusta, if it be not cotton. Fulfil the following conditions, and it will come:—

1st. Build your bridge to the wharves of Augusta, and you save 75 cents on drayage and bridge toll for each dray load. 2d. Continue your road to the wharves of Charleston, and you save 68 cents a second drayage on four bales. 3d. Do away with your tariffs on Georgia cotton of 7 pounds each bale, which sold at fifteen cts, makes upon the dray load of 4 bales, 28 × 15, $4 20. 4th. Reduce your commissions to the Savannah standard of 50 cts. the bale, and instead of your 2½ per cent. for selling, which gives $5 12 for your 4 bales, make it $2, saving by this item $3 12. These contingencies give $8 75 on the dray load, or $2 18¾, the undue expenses of each bag, over and above the Savannah costs, the freight being the same; which freight, at 75 cts. a bale, would make a handsome profit.

The Merchant here, appeared satisfied; he said that the subject was an important one to all classes of the community—that he himself was convinced that the "victory was worthy of the battle"—that he would take stock in the Engineer's road—and begged him to remember, that while performing a high duty to the planter, the merchant was equally dependant upon his assistance, for if the planter found it his interest to get to the merchant, the merchant was doubly anxious to facilitate the intercourse. He therefore further requested the Engineer to make out a full report on the subject of the Gulf trade, as connected with the direct trade of Charleston, and promised him that it would be received with the utmost interest.

Thus ended this lengthy discussion upon a subject, which we fear, our limits have not allowed us to do justice do.

# PART II.

## SELECTIONS.

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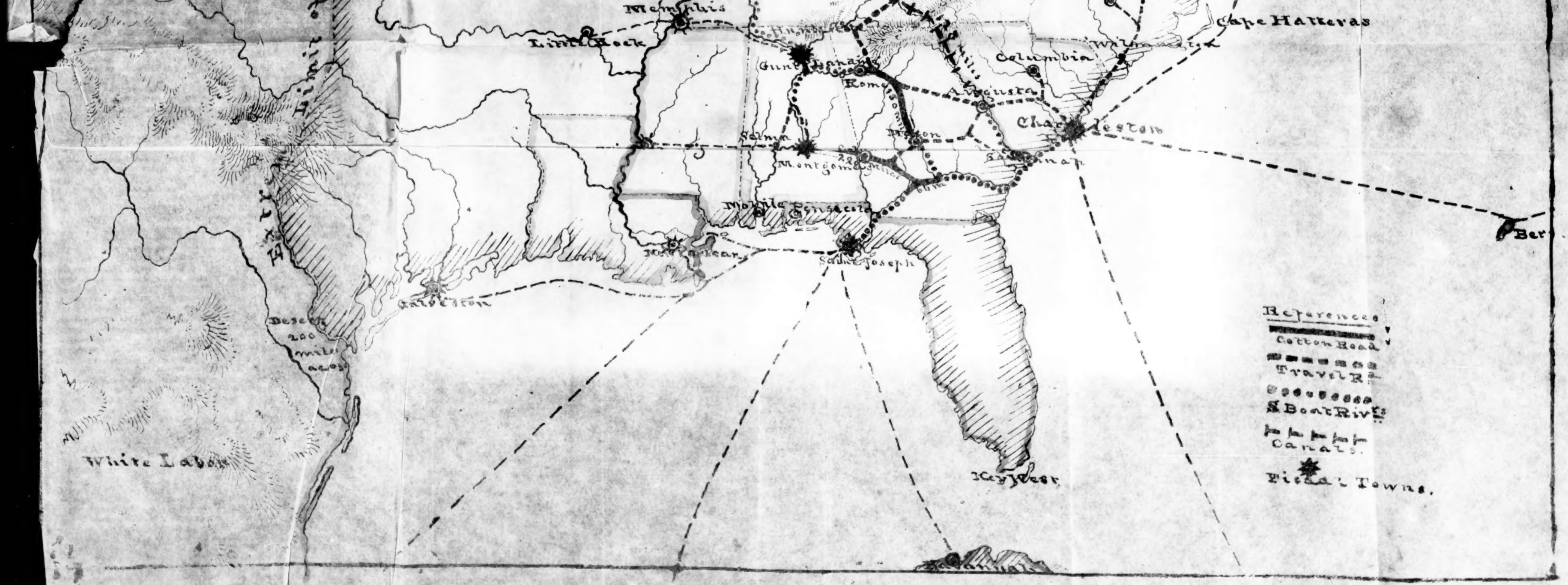
### *Treatise on the Culture of Silk; by* GIDEON B. SMITH.

[FROM THE FARMERS' REGISTER.]

#### NO. 2.

*The Laboratory, Fixtures, Silk Worms, &c.*

The laboratory, or building in which silk-worms are to be raised, must be of a size proportioned to the number of worms intended to be kept. As to its form and structure, no precise rules can be given, nor indeed are any such necessary. Probably no two persons in Europe have laboratories precisely alike; and this fact goes to prove that no particular construction is necessary. All that is required, is, that the room should be of sufficient size to accommodate the number of worms intended to be kept: that it should be provided with fire-places or stoves, for raising the temperature when necessary, and drying the air, and with ventilators in the ceiling, and windows on all sides, for the purpose of ventilation and light. I would, however, recommend wooden, instead of brick or stone buildings, as they are more easily managed as to temperature, than the latter; and, in damp weather, do not condense and collect water from the atmosphere so much. In a large room, three or four small stoves at the extreme ends and sides are very useful in severe cold times, and also in very damp weather. Ventilators may be very usefully made at each side of the room (if the house be a frame,) by leaving a space one or two feet deep, and the whole length of the room, and reaching to the floor, occupied by long shutters, hung by hinges on the upper sides. In ordinary warm, dry weather, these shutters may be raised, more or less, as desired, and thus the room kept well supplied with fresh air. During cold or damp weather, the shutters will, of course, be kept closed. A large room ought to have several vents for the escape of foul air, in the ceiling. These may be nothing more than ordinary trap-doors, two feet wide and three feet long, with shutters to close them at pleasure. When these are opened, and the ventilators at the sides also open, a free current of air will be kept up through the hurdles, and thus the laboratory will be kept free from impure air. They will be found particularly useful after a time of rainy or damp weather, during which it has been necessary to keep the room shut up. I have found *fire* particularly useful in these damp times, (though the temperature was sufficiently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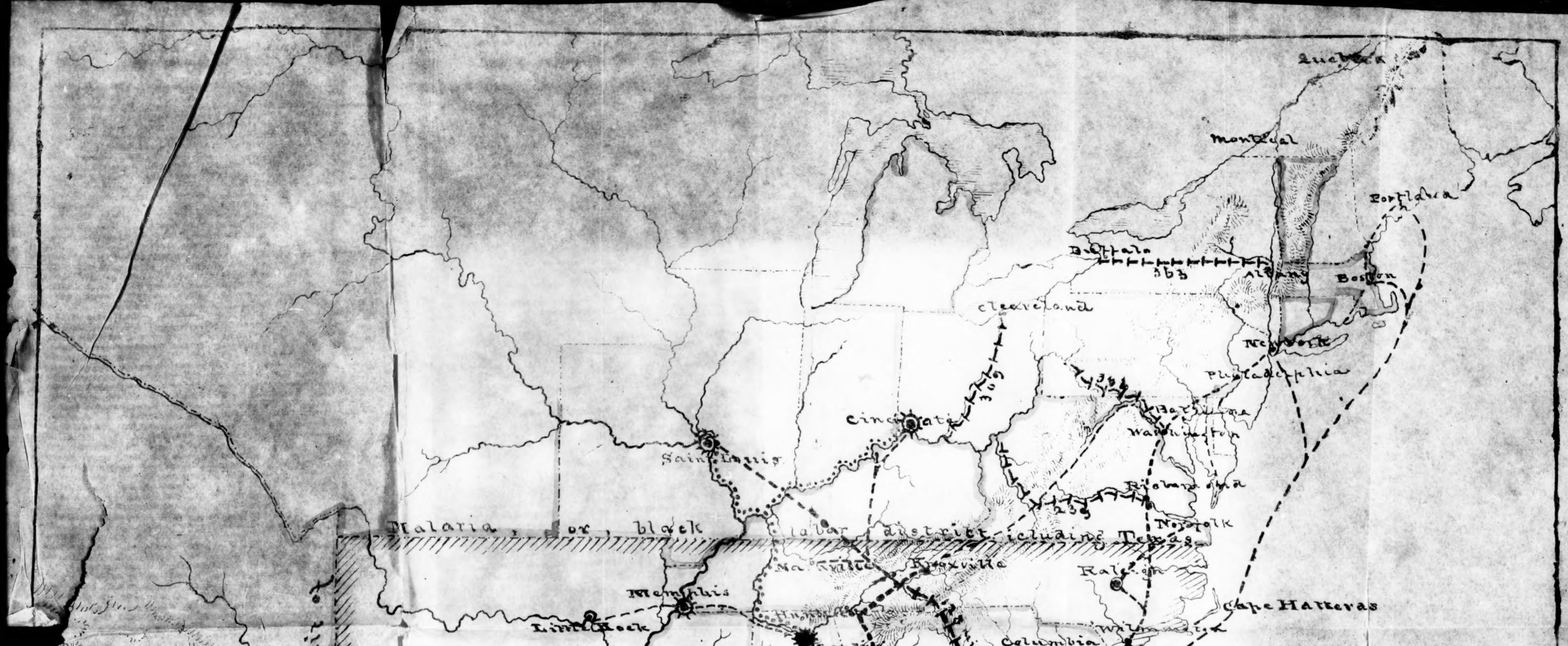
Malaria, or, black, labor, district, including, Texas
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Raleigh
Norfolk
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Wilmington
Washington
Philadelphia
New York
Baltimore
Richmond
Quebec
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455
455

high of itself.) in purifying the atmosphere in the room. I generally make a brisk blaze with light-wood or shavings, in the fire-places or stoves. It has an admirable effect, not only in expelling foul-air, but in enlivening the worms—probably by drying the damp air. I have found much more use for fire, during such times, than I ever have on account of cold weather. Indeed, we seldom have weather cold enough to do harm at the season of feeding silk-worms; though we do sometimes, however, it is of short duration. Permit me to make one remark here, on the effect of temperature on silk-worms. I would not be understood as saying or believing, that the temperature could be neither too high nor too low for a profitable result; but I do say, that silk-worms are not affected more than other insects, by its variations. Indeed, I am pretty well convinced, that ordinary variations of temperature are as beneficial to the constitutions of silk-worms, as they are known to be to other animals. *Extremes* only do harm. Do we not find that a continued sameness of temperature, especially if warm, is debilitating to our own systems, and to those of all other animals? Look at the people of the tropics. The temperature there is seldom higher than with us in summer, but it is more equable—always nearly the same. I need not allude to the effect of it on the constitutions of the people: their imbecile, languid, lazy, spiritless characters, are proverbial. As we go north, where the variations of temperature are the greatest, we find the constitutions of men and animals the most robust. Indeed, variations of temperature, and the agitation of the atmosphere in the form of heavy winds, appear to be beneficently provided by the Creator, for the well-being of all his creatures. Why, then, are silk-worms supposed to be exceptions to this rule? I cannot believe that they are: and my experience supports me in the belief of their being, like all other animals, only injured by extremes.

A pretty good calculation may be made as to the size of the room required, from the fact, that a room eighty feet long and forty wide will accommodate one million of worms. Instead of one room of that size, four of forty by twenty, I think, would be preferable, as being more conveniently managed, and being better adapted to a proper *division* of the worms, which may then be separated, each days hatching being placed in a distinct room. The temperature of the rooms can also be more easily regulated, though possibly at something greater expense of fuel.

In large establishments, a hatching room will be useful. This need not be large—say twelve by fifteen feet. It should be made close, with a couple of windows, capable of being perfectly closed by shutters at pleasure. A good stove should be provided, capable of raising the temperature to summer-heat, when required. This room may be conveniently used, also, for killing the chrysalis in the cocoons, as will be hereafter shown.

Another room will be necessary for the accommodation of leaves, a good supply of which for a day or two a-head, should always be provided, that no lack of a supply may occur during rainy weather. A loft over the laboratory, or a room in the basement, may be very conveniently used for the purpose. In a basement, leaves will keep fresh for three days, but they should not be left in compact masses, as they are apt to *heat*, from spontaneous fermentation. It is proper that they should be occasionally stirred and shaken about, to prevent such an event.

The fixtures of the laboratory are convenient hurdles or shelves, for the accommodation of the worms while feeding and spinning their

cocoons. The best form and construction are those first adopted by me, and which I believe are now in general use. They are two and a half to three feet wide, and four to five feet long. The size may, of course, be varied at pleasure, without detriment or inconvenience. The size mentioned will accommodate about five-hundred worms, when ready to spin cocoons. They are made like the outside frame of a window-sash, with a floor of netting. The netting is now woven in the North for the purpose, and only requires to be tacked to the frame, well stretched. Formerly it was necessary to make the netting ourselves, which was done by perforating the sides and ends of the frame with a broad awl five-eighths of an inch apart, and inserting good skein twine first, length-wise, until it was filled, then crosswise, weaving it by passing it over and under the other twine alternately, and drawing it quite tight. The twine will be about five-eighths of an inch apart each way. It is of some importance that the twine should be *tanned*, by immersion in a tanner's vat, for a few hours, dried, and then thoroughly washed, to remove any remains of the tan that may be on it. This ought also to be done with the prepared netting, if that be obtained. The utility of the tanning is obvious: it prevents rotting, to which the twine is liable, from the dampness of the filth. The netting should also be put on the frames in dry weather, because the twine is then at its greater expansion; and if put on in that state, is not so liable to stretch and *lag*, when loaded with worms and food. Another frame of the same size is to be covered with *paper* or muslin, to be placed immediately under the net frames, in the *stands*. These latter are used for the purpose of catching the ordure and filth that falls through the netting of the hurdles. They may be placed two or three inches below the hurdles.

The *stands*, for the support of the hurdles, are simply upright posts, made of three or four inch joist, firmly fixed to the floor below, and to the ceiling above, two feet apart one way, and just far enough the other to permit the free passage of the hurdles sideways between them. Pieces of wood are to be nailed to each two posts to support the hurdles, at about twelve inches apart. I had mine only nine inches apart; but I think they are better at twelve inches. Another piece is to be put upon the posts two or three inches below the others, to support the paper shelves. On this plan, it will be perceived, that the hurdles have the appearance of a set of shelves. The whole room is to be thus occupied with the hurdles, leaving alleys between each range for the free passage of the attendants.

The fixtures in the hatching-room, are simply one or more ordinary tables, sufficient to accommodate the eggs to be hatched, a thermometer, and a good stove.

*Hatching.*—About the first of May, the eggs, which have, of course been kept in the cellar since the time they were laid last season, are to be put in the hatching-room; the papers on which they are, are to be spread out on the tables. If the temperature be not as high as 70°, it must be raised to that point before the eggs are taken to the room; if it be higher, *naturally*, it is of no consequence. Every day the temperature should be increased one or two degrees until the eggs are hatched; unless, as just before observed, the temperature be above 70° naturally, in which case all that will be necessary is to prevent a depression at night, and changes of the weather. It will not be necessary, at any time, to raise the heat higher than 80°. Generally, in about five days the worms will begin to hatch. The first day, but few will come out, and these need not be regarded; but on the second

day, considerable numbers will hatch, and they should be taken and placed on the hurdles, and the hurdles containing each day's hatching should be marked with the date of the hatching. Where there are four laboratories, as recommended in a previous page, each days hatchings should be conveyed to separate rooms. On the third, fourth and fifth days of the hatching, the same routine must be observed. On the latter day, all the eggs will be found to have hatched, except a few scattering ones, which, like those of the first day, need not be regarded, as they will be too few in number to be worth any trouble; and if mixed with the others, will only cause confusion by their irregularity in moulting, &c.

For removing the young worms from the hatching-tables to the hurdles, I have found the best method to be, to lay whole mulberry leaves on the table, covering the eggs and worms completely. The young worms will soon collect upon the leaves, when they are readily conveyed to a small portable hurdle, by taking hold of the stem of the leaf, borne to the laboratory and laid upon the hurdles. Many thousands may be accommodated on each hurdle for the first week; and as the worms grow, and become crowded, they must be distributed to other hurdles. All these minute affairs will suggest themselves to the intelligent operator, as they become necessary. The morning is the time for removing them, as they generally hatch from day-light to seven or eight o'clock.

As soon as the young worms are placed upon the hurdles, a supply of food must be given them. The leaves may be torn into small pieces, and scattered over the surface of the hurdle, covering the young worms with them. They will speedily commence eating. The leaves on which they were borne from the hatching-room will, however, be sufficient for several hours. The worms are now to be regularly fed three times a day, with fresh leaves, torn into small pieces the size of a dollar or thereabouts, for the first week; after which, they are as well laid on whole. Care should be observed not to lay on more leaves than will be consumed, as considerable waste would thus occur; and, also, not to allow the worms to remain one moment without food; it were far better economy, indeed, to waste leaves by giving too much, than to stint the worms, at any stage of their existence. For the first two weeks, no other care is necessary than attention to their being properly fed three times a day, as above remarked; keeping the room at a moderate temperature, by artificial heat, when cold, and by ventilation, when hot and sultry. The French divide the time of the worms' existence into periods, which are distinguished by their moulting or shedding their skin. These periods are called ages, and very particular directions are given for observance at each of these periods or ages. I, however, have never found any particular necessity for much variation in treatment. Cleanliness, moderate temperature, and a full supply of food, at all times, are all I ever found either necessary or useful at any time. The periods of moulting are generally about the seventh, thirteenth, nineteenth and twenty-fourth days from the hatching; but these periods are materially influenced by the care and attention bestowed, and the state of the weather. Some worms will be ready to spin on the twenty-fifth day, while others will delay their spinning even to forty and fifty days, according as they are well or illy attended to. And here let me advise the young beginner, that *care is money;* for there is no kind of human employment in which care is so well rewarded, as in the management of silk-worms. The worms that by want of attention are

made to spin out their time of feeding to forty or fifty days, will have consumed double as much food as those that begin to spin their cocoons on the twenty-fifth to the twenty-eighth day; will have occupied double the time of the attendants; and, after all, will not produce much, if any, over half as much silk, and that of an inferior quality, as they would have done, if well attended to, and thus made to spin at the proper time. This fact, which I have abundantly proved in my own practice, should never be lost sight of.

The French also direct certain quantities of leaves to be given each day, during each age of the worms. This I never found of any service whatever. Worms will eat double as much one day as they will another, owing, probably, to the dampness or dryness of the air, or to various other causes; but whatever the causes be, the *ten* or *twenty* pounds of leaves directed to be given them, may be entirely too much or far too scanty an allowance. My plan is to keep fresh food on the hurdles at all times, and this I believe to be the only economical rule. I have often weighed the leaves according to Count Dandolo's scale, but never found the quantities he recommends to agree with the demands of the worms—they sometimes requiring more, and sometimes less. I imagine, that the idea of weighing the leaves for each day's consumption, in France, originated in the fact, that the leaves are grown by one person and the worms raised by another in that country; the person who raises the worms purchases the leaves by weight, and this making it necessary that the consumer should form some estimate of the probable quantity he would want each day. It could not have originated in practice; for, as before remarked, the consumption of leaves is not regular at any particular time.

The French also direct the leaves to be cut fine, and have knives for the purpose. The Chinese also do the same. For several seasons I followed these directions, and cut the leaves with a sharp knife, but was ultimately led to doubt the utility of it, and to abandon it. On close observation, I found that the worms did not like the cut edges of the pieces of leaves, and have often seen them turn from them in apparent disgust. I at first supposed my knife was not sharp enough, and that hence the edges of the leaves were somewhat bruised in cutting; but it was the same with the sharpest knife I could use. Besides this, I found that the worms would get upon and press down the finely cut leaves, and thus cause considerable waste; and further, that the leaves thus cut, would wither and become useless much sooner than whole leaves. On trying even the youngest worms with whole leaves, I found they would eat them just as easily as when they were cut. Even the old full grown leaves were as readily devoured by young worms, as young and tender leaves would be. From these facts I concluded that even if cutting the leaves were never so unobjectionable, it yet was a useless trouble, and I abandoned it altogether. Indeed, when I fed with white mulberry leaves, I even went so far as to gather the leaves by cutting off small branches and laying these on the hurdles with all the leaves on them; and this is by far the best plan, as the leaves keep fresh much longer—indeed, until they are entirely consumed, and allow the worms a much better and more natural position while feeding; as they get upon the branches, in all directions, they are not crowded upon a flat surface, but are supported by the branches. *They* prefer this plan to all others.

*Clearing the hurdles* must be attended to, not at regular periods, but as often as the accumulation of filth and offal makes it necessary. The use of the net hurdles renders this not so often requisite, but still it must

not be neglected, especially in damp weather; for it must be borne in mind, that nearly all the diseases of silk-worms proceed from foul hurdles. To clean the hurdles, all that is necessary is to lay over the worms some large fresh leaves in the morning, and as soon as the worms attach themselves to them, which they will immediately do, take the leaves by the stem, and lay them on a clean hurdle. In a few minutes a hurdle may thus be cleared of the worms, when the filth and offal may be thrown away, and the hurdle used for the reception of the worms from another; proceed in this way till all are cleared. It is a good plan to carry the filth to a distance from the laboratory, as if deposited, as is too often done, *under the back window*, it may do just as much harm as it would if left on the hurdles.

*Fresh leaves* are essential to the health and vigor of the worms, and therefore great care must be observed that fermentation has not commenced, when they have been kept on hand some time, as is necessary in wet weather. Fermentation will be readily observed from the effluvium in the room, and also from the appearance of the leaves, which will exhibit dark-colored spots. When the least appearance of it is discovered, it were better to throw away the whole, than run the risk of injuring the worms. To prevent fermentation, cause the leaves to be well stirred about two or three times a day.

*Wet leaves* must, in no case, be given to the worms. They are almost certain to cause disease, and that of the most fatal character. I once lost a whole crop by this means. In wet weather, the leaves may be dried by spreading them about the room, and frequently shaking and stirring them about.

*Vermin, mice, ants, &c.* must be guarded against. Mice devour silk-worms with wonderful avidity; and the bite of an ant is almost instant death to them. The only way to guard against mice, is to exclude them from the room by some means. Ants may be guarded against by not allowing the hurdles to touch the walls, and by surrounding the legs of the stands with small leaden troughs, filled with water. These are easily formed, and ought not to be neglected when these little pests are troublesome.

*The moulting*, or changing the skin, takes place generally with the common silk-worms, as above stated, and will be observed by the worms ceasing to eat. Generally all of the same day's hatching moult at the same time; and at these times they do not eat, but seem sick. All that is to be done is simply to leave them undisturbed. The food last given them will be left unconsumed, or only partially so. This forms convenient recesses for them to retire to for moulting. They remain in this sickly state from twenty-four to thirty-six hours, and their recovery from it will be immediately observed by their activity and increased size, and considerable change of color. They should be fed immediately with fresh leaves. The first and second change is so imperceptible as to require a close observer to discover them.

Strict attention to cleanliness and ventilation, and undeviating regard to keeping a full supply of fresh leaves on the hurdles, are all that is meant by me when speaking of *care and attention*. If the above rules be completely carried out, the worms will begin to spin in from twenty-five to twenty-eight days. If the worms are not thus carefully attended to, they will begin to spin at any time within sixty days, and then their cocoons will be the less valuable, for every day their spinning is protracted beyond thirty days from the time of hatching.

*The air* of the worms must always be kept sweet and pure. If from any cause whatever, a stench be observed, sprinkle the floor with a solution of chloride of lime, and set cups of it about the room. It is a good plan always to keep a stone jar of it sitting in one corner of the room, and frequently changing it to different places, even when no foul air or disease is present; for it is always better to prevent than to wait to cure diseases. All the diseases I ever discovered in silk-worms are readily cured by the free use of chloride of lime or soda. The *tripes* is a disease induced by foul air, and is closely analogous to the plague in the human species. I have known it to destroy a whole laboratory of worms, consisting of about 500,000, in one night; and have myself lost, at one time, about 100,000. Since, however, I discovered the preventive and curative powers of this most excellent article, I have never lost a worm by any disease. All that is necessary, usually, is to keep the chloride of lime in the room, as above stated, and occasionally sprinkling the floor with a solution of it. A table spoonful, put into a pint of water, is a good quantity to use. If, however, the disease has commenced its ravages, lose no time in removing the hurdles containing the diseased worms, from the room; then take half a pound or so of the chloride, put it into a gallon of water, sprinkle the floor well with it; put a spoonful of the chloride in each of several saucers, with a gill of water, and set the saucers about the room, particularly where the disease was first observed. As these diseases always, or at least generally, appear in damp, cloudy, or rainy weather, make a brisk blaze in the fire-places or stoves. Throw open all the windows and ventilators; and take care that all the filth, if any there be, be removed. In a few hours you will find the disease checked. If there are any dead worms on any of the hurdles, they must be removed forthwith.

Here I must be indulged with an explanation of a circumstance of a rather laughable nature, though it is as much at my own expense, as any body's else. It is in relation to the discovery of the valuable properties of chloride of lime, in preventing and curing disease in silk-worms. It is well known that I have often claimed the *discovery* of this most valuable agent, and that some years ago a scientific *Frenchman* read a paper before a learned society in Paris, setting forth the important fact of its then recent discovery, and elucidating its great value to the silk growing interest. What will the public think of me, and of the Frenchman of science, and especially of the learned society of Paris, when informed, that we are *none of us* entitled to the credit of discovery; that it is an old remedy—an old agent used and recommended by Count Dandolo himself, whose writings we all of us had read, whose writings were and had long been familiar as household words to the Savans of Paris! Yet, such is the fact, though I never was aware of it until this present writing, when I discovered it while looking over a translation of the writings of Dandolo in the Silk Manual, published by order of Congress, in 1828, in which work it will be found at page 119. The article chloride, it is true, is not mentioned by Dandolo at all, but its elementary principles are described and recommended, for the purifying of noxious air, very distinctly. I had often read the passage, and understood something of chemistry too, but never suspected that the combination of a portion from Dandolo's bottle of common salt and black oxide of manganese, and another of sulphuric acid, would produce chlorine gas. It is true, had I reflected a moment, I should have discovered it; but all of us are in the habit of considering things *themselves*, not the individual materials

of which they are made. Hence my oversight, and of course that of the learned men of Paris. For my own part, I ask pardon of Dandolo for the claim I have heretofore set up to his property; but would recommend him to be a little more explicit in future, in his descriptions. But the fumigation of Dandolo, though it be chlorine gas, is not as good as the chloride of lime or of soda; as the gas evolved is not pure, but contains large portions of deleterious gases which are necessarily evolved with the chlorine. Besides the chlorides of lime and soda are infinitely more convenient, and even cheaper.

It seems necessary to recur to the *temperature* of the room, for the purpose of noticing an omission while treating on that head. In very high temperatures, the French recommend sprinkling the room with cold water, for the purpose of cooling it. I have often done injury by doing so, and recommend that it be not resorted to. It of course creates a dampness in the air, which is injurious and often dangerous. If the weather be dry, free ventilation is all that is necessary, where proper cleanliness is observed, let the weather be never so hot. Darkening the room has a good effect in hot weather; and at no time must the sun be allowed to shine upon the worms. A *twilight* is preferred by the worms.

The worms will begin to spin cocoons from the twenty-fifth to the thirty-fifth days from the hatching, depending on the care with which they have been attended to. As before observed, if carelessly attended to, they may not begin before the fortieth or fiftieth day; but generally the thirty-fifth day will be the time of commencement. Their readiness to spin will be immediately observed by their transparent, slightly amber color, by their ceasing to eat, and wandering about, leaving fibres of silk on the leaves, and by some of them actually beginning to spin cocoons among the leaves and rubbish on the hurdles, in the corners of the frames, &c. It is then necessary to prepare the *hedges* for them to spin on, or such other contrivance for the purpose as has been determined on.

*The hedges* for the worms to spin their cocoons on are composed of various materials, and are as various in form. The French and Italians use brush of oak and various other kinds of trees, from which they construct hedges across the hurdles, resembling miniature bushes set close together in rows, and pressing against the hurdle alone. The worms climb these hedges, and spin their cocoons among the branches. I always used *broom-corn*, and found it to answer admirably. The seed is carefully to be combed off, the stock cut off close to the commencement of the straw or brush; the top cut off square, and spread out, pressing against the upper hurdle or paper shelf, and the lower end resting upon the netting of the hurdle. Rooms of these set across the hurdles, six or eight inches apart, and as close together in the row as the tops will admit, answered the purpose with me. Of late, however, cocoon frames, made of laths, have been used, and with success, by many persons. I have never seen them, and am unable to give such a description of them as will enable the reader to construct them. Various other contrivances have been adopted, entirely different from either of the above, and even from each other; and, their authors assert, equally effectual for the purpose. These facts only prove that the silk-worms are not very particular as to where or on what they form their cocoons. They will, indeed, spin them any where; the only object to be attained by particular structures for them to spin on, is the prevention of waste of silk matter in forming the *outlines* of the cocoon. Where there is a space just large enough for the cocoon,

very little silk will be wasted in the form of tow, or refuse silk. If the space be too large, the worm is compelled to reduce it, by filling it with loose fibres, to the proper dimensions for the cocoon.

As the worms on each hurdle begin to spin, the hedges or whatever else is to be used, must be supplied; and the attendants should keep an eye upon the worms, to see that they all spin in the proper places. Some will not rise to the hedges or other places prepared for them, but commence spinning on the leaves in the corners of the hurdles, &c., they must be taken and placed upon the proper place. Observe that they do not get crowded too close in the hedges or other places, so that they will not each have room for a cocoon: for if they do, they will form *double cocoons*—that is, two or more will join in forming one cocoon, which is good for nothing, except for earding and spinning, as it cannot be reeled.

The worm is four days spinning its cocoon. Consequently they should be left perfectly undisturbed during four entire days after they commence spinning. On the fifth day after the whole have commenced, the hedges or other support of the cocoons may be taken down, and the cocoons taken off. Select the number of cocoons you may want for the production of eggs for next year, and prepare the others for reeling or for sale. If you can do so, the best way is to reel them at once; if not, the insect must be killed.

Various methods of killing the insect are in use. In France they bake the cocoons in an oven from which the batch of bread has just been drawn, or which has been heated for the purpose to about 150°. If too hot, the silk will be scorched, and thus ruined; if too cool, the insect will not be killed. In Italy they effect the object by exposing the cocoons to the hot sun for several days. Others kill them by filling a vessel containing them with hot steam; others with vapor of spirits. I have lately suggested that they may be effectually killed by the vapor of charcoal—carbonic acid gas—and for this purpose they may be carried into the *hatching room*; all the doors, and windows, and chimney of which must be perfectly closed. Dispose the cocoons about the room on the net hurdles, one above another, similar to the hurdles in the laboratory. Fill a common portable furnace with charcoal, and set it on fire; place it in the middle of the room, and close the room perfectly. In a short time the room will be completely filled with the deleterious gas, and must of necessity smother the chrysalis in the cocoons. I have heard of this plan having been tried in one instance only; but, in that, it was perfectly successful, and I have no doubt it will always be so. If it is, it is an important improvement, not only in saving much labor and time, as well as expense, in this part of the business, but in saving a great deal of trouble in reeling the cocoons, as it does not harden the gum, as all other processes do, and consequently they are easier to reel. Besides, there is no danger of injury to the silk, which is always more or less depreciated in value by the heat applied in killing the chrysalis. I am at present clearly of the opinion that this process will be universally adopted; but I have only *theory*, and one experiment, for the basis of this opinion. I am not now engaged in the business, and have no opportunity to make the necessary experiments. I would advise that a few cocoons be at firet tried, say two or three pounds; that the cocoons thus tried should then be spread out in a warm airy room, for at least two weeks; if none of the *insects* come out, the result will be conclusive. The cocoons are now ready for reeling, or for sale.

*Eggs* for the next year's use are to be obtained as follows. Spread out the cocoons selected for the purpose on a large table, in any room that can be kept warm and comfortable, and that can be made dark. In about ten days from the time the cocoons were finished, the *moths*, or butterflies, as they are sometimes called, will perforate the cocoons, and come out. They will immediately couple, and are then to be taken in pairs, and placed upon the paper suspended for their accommodation, as described in the following paragraph.

Stretch a small cord across the room, about as high as your head, then two others, two and a-half feet apart, and one foot below the first cord, so that the first will be over the centre, between the lower ones. Then hang old newspapers over the cords, and pin them to both top and bottom cords. This will form a long range of papers, resembling the roofs of a long row of houses. As the moths couple, place them on these papers; take them by the wings between the thumb and fingers, as they will not be separated by it. You need not trouble them further; as after they separate, the female will commence laying eggs, and attaching them to the paper in a small spot about as large as a cent. Put moths enough on each paper to cover the whole sheet with eggs; but not so many as to compel them to lay their eggs on those already there, that is, to pile the eggs on top of each other. This they never do unless from necessity. After they have done laying eggs, the moths generally die in a day or two; the males generally die soon after they separate. The moths do not eat. The recommendation of the French, to separate the moths after they have been coupled *six hours*, is perfect nonsense, and is one of the ridiculous refinements that refined people have tried to apply to the silk-culture, without the shadow of utility to recommend them, and only remarkable for the great additional labor and perplexity with which they encumber the business. Like all the other fooleries of the French, I tried this, and got for my pains no other result than a loss of about one-third of my eggs, which were *not fecundated*, as I might have expected. Let the moths remain together till they separate of themselves, and all your eggs will be good. The room where the cocoons and moths are should be kept nearly dark.

As soon as a sheet is filled with eggs, take it down, roll it up, and put it away in a cellar or an *ice-house*. They should be put in a *tin* or other metal box, to prevent mice and other vermin from eating them, and should be kept dry, to prevent mould and mildew. If it be desired to keep eggs to a late season the next summer, for the purpose of raising several crops, it is best to put the box of eggs, immediately after they are laid, into an ice-house, and keep them there till wanted. If they are only kept in a cellar till the next spring, and then put into the ice-house, they will hatch in the ice-house very nearly as soon as those exposed for hatching in a warm room. I once had more than a million hutched in this way, in the largest ice-house in Baltimore, the basket containing them sitting in the midst of the blocks of ice, under the straw. I do not even know that putting them in the ice-house immediately after they are laid, will prevent their hatching, but am informed that this has been the effect in several instances where it has been tried. For myself, I have no faith in the double or treble crop theory. I do not believe it will ever be profitably pursued. The natural time of hatching the eggs cannot in my opinion be either anticipated or postponed with complete success—at least I never was able to do so.

To estimate the number of cocoons you will want for a given number of eggs, all you have to do is to divide the number you want by 150—thus, if you want 100,000 eggs next year, or 2½ ounces, divide 100,000 by 150 and you have 667 as the number of cocoons required. It is true, the moths often lay more than 300 eggs, but you must allow for various circumstances that may diminish the number. I need not remark that it requires *two cocoons*, a male and female, to produce the 300 eggs—however, we allow 150 to each.

This essay may not be considered as full and minute in its details as desirable by some; but I believe I have described every thing necessary to the most profitable carrying on of the business. Many particulars contained in books, especially French books, are not noticed at all, for the simple reason, that I deem them useless, and do not wish to occupy the reader's time in useless criticisms. My next number will treat of the *reeling* of cocoons, &c., which will complete the series.

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## *Mulberry Trees and the Silk Business.*

[FROM THE NEW-ENGLAND FARMER.]

*Extract from a Letter from Mr. Chauncey Stone, of Burlington, N. J.*

In reply to your questions it will be necessary for me briefly to recapitulate them. Question.

1. Have you been long engaged in cultivating the mulberry?
2. What species of morus do you deem preferable, and what kind of soil suits it best?
3. What is the best mode of propagating, planting and managing it?
4. What is the value, expense and profit on an acre of mulberry trees for the first five years inclusive?
5. What kind of worm do you consider the most valuable?
6. What help does it require to raise one hundred pounds of silk?

*First.*—I am one of the number who first commenced the silk business in this vicinity, and have devoted the two last years with close application practically to the culture of the morus multicaulis and rearing the silk worm.

*Second.*—I have taken much interest during the last few years in comparing the relative qualities of the different mulberries; and at present I know of none better than the morus multicaulis for this and the more southern latitudes for the silk business. The Alpine, the Canton, and the Brusa, are excellent species, and may be well adapted to the more northern latitudes. Most of the different species I have seen, which are fourteen or fifteen different varieties, require four or five years' growth before having much foliage to part with; but the multicaulis will yield a large quantity the first year's growth without injury to the tree, and is eaten with great avidity by the silk worm. The mulberry that is most productive of fruit is less productive of foliage. The multicaulis produces very little fruit, and is not often grown from the seed. It will flourish on all soils where the peach does.

To select a location on which to plant a field for the silk business, I would prefer undulating grounds, having a deep mellow loam, and mixed with sand and gravel sufficient to prevent the soil from baking or crusting.

*Third.*—After having the ground made mellow, lay out the field in rows about four feet apart, and the surest mode, by taking one season with another, is to lay the tree down full length and cover deep enough to keep moist. The time for planting in this latitude, I think, will be during the first and second weeks in April, in common seasons. By planting a field of mulberries in this mode, they must be taken up in the autumn, as they will stand too near each other to remain in the ground. But to plant a field of mulberries not to be taken up in the fall, my own views are to lay out the rows about five feet apart, and in the autumn take up every other tree in the rows, leaving them standing four feet apart; the remainder to have the tops cut off near the ground in the fall. In the following spring, many shoots from each stump will start up with vigor, and produce an abundance of foliage, and easy to be gathered. And where the field is large, I think every fifth row may be omitted and not planted, but used as a passage for a cart or wagon in which to transport the foliage to cocoonery. Our experiments made this season have proved the feasibility, that mulberry treated in the above manner will fulfil the most sanguine anticipations.

*Fourth.*—To answer this question it will require some philosophical speculations, as the feeding of silk-worms from an acre of multicaulis of four or five years' growth, has not been done by me, or under my observation. At the rate of fifty pounds of reeled silk to the acre has been produced from the first year's growth of trees. But from an acre to be planted in the manner I have described, thirty pounds the first year will be a fair production, and by leaving the roots in the ground and pruning the tops in the autumn, I deem it not extravagant to estimate one hundred pounds reeled silk yearly on an average, the four succeeding years after the first year's growth of trees.

After the cocooneries and fixtures for feeding are prepared, we can feed the silk worms and reel the silk at an expense not over two dollars and fifty cents per pound, and it is then worth from four dollars and fifty cents to six dollars a pound to the manufacturer.

*Fifth.*—At present I know of none I prefer to the white mammoth worm, so called, but we have a kind that spins a large yellow cocoon, and is a very good kind. The silk of the white is worth most. We have a kind called the two crop kind, that can be reproduced the same year, but they spin a small cocoon.

*Sixth.*—It requires a person having experience to take charge of the feeding, who can manage during the first week alone after the worms hatch, and the second week a boy or girl will be wanted to pick leaves, and after that another person, equal to a full hand, will be all that will be required to finish the crop, which will be about three hundred thousand in number.

By this calculation I expect the cocoonery to be convenient to the mulberry field. It requires too hands to change the worms dexterously, but they can attend to that in the morning when the dew will be upon the leaves, and to gathering the foliage after the dew shall disappear. A stock of leaves will always be wanted before hand, lest there should be rainy weather, when they cannot gather them.

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Those who raise silk and wishing to sell it in its raw state, had better reel it into skeins, and is then in a merchantable condition.

I have answered your interrogatories in a manner that appears most feasible to my views, but I do not pretend to lay down any particular modes or systems as applicable to all future generations.

## *Raising Mulberry Trees, and Growing Silk.*

[FROM THE U. S. GAZETTE.]

The extraordinary demand which exists at this moment, and has existed for some months past, for the species of mulberry called morus multicaulis, and the no less extraordinary profits which many of our fortunate fellow-citizens have realized this season in raising these trees, have produced quite "an excitement" in our community, and set men to thinking upon the subject of silk growing. The writer of this is one whose want of faith prevented him, last spring, from accepting an offer which would have put "a pretty sum" into his pocket. But though then faithless, he is not now on the other extreme. Let us look at the matter fairly and candidly.

The question is, not whether mulberry trees can be sold next year at the high price which they now command, but whether this is likely to become a silk raising country, and whether farmers and others in various parts of the Union, yea, and in *every* part, are likely to add the culture of silk to their other crops. It must be admitted, for experience has tested the fact, that the soil and climate of nearly every portion of the United States is adapted to the raising of silk. It will also be admitted, that this is an article the consumption of which is rapidly increasing in this country, Great Britain, France, and South America, expensive as the fabrics manufactured from it are. It is also a fact that it can be produced with much less toil, expense and uncertainty, than a crop of flax; and furthermore that it will call into requisition many of those who are now comparatively idle, for want of suitable employment, namely, females and children; who can pick the leaves, tend the silk worms, reel the silk, &c.: for it is well known that most of these operations are simple, and a knowledge of them can be acquired in a short time, and by a very little practice. Besides, the price of silk is such as to make the raising of it a very profitable business, and it would be so, even were the present prices reduced twenty-five or fifty per cent., a circumstance not unlikely to take place in a very few years; in which case a corresponding increase of consumption may be reasonably calculated upon.

Under this view of the subject is it not morally certain, knowing as we all do the enterprising character of our countrymen, that the article of silk will become one of the staples of this country? Not in one year, nor perhaps in five years, but as soon as the country can be supplied with trees and worms. We think so, though we may misjudge. What prevents us from exporting silk even to China, from whence we formerly imported large quantities of manufactured cotton goods, and to which we now send, annually, millions of yards of an infinitely better fabric, at a less price?

The value of silk and silk goods imported into this country annually, is from twenty to twenty-five millions of dollars; we may not be able to manufacture the article for many years yet, in all the shapes which taste and luxury require, but we can manufacture all our own sewing silk, handkerchiefs, and many of the coarser fabrics, and we can also export the raw material to those countries, (say Great Britain and France,) where the manufacture has been carried to greater perfection, in payment of the articles which we may import from hence in a manufactured state. Mr. Gallatin, a sagacious statesman, and a close observer of men and things, said more than twenty years ago that this

country must one day become a silk growing country; and would have been so then, but that the Americans entertained the false notion that there was a *mystery* or grand secret in raising silk, whereas it was one of the most simple operations, and as sure a crop as flax or cotton. His prediction is now coming true, at least, to a certain extent, and viewing the whole subject—the *pros* and *cons*—fairly and impartially, we cannot but think his expectation will, ere many years pass away, be fully realized. If so, those who are inclined to embark in the business, can run very little hazard, and *may* realize large profits for a year or two to come.

NO SPECULATOR.

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## *Improvement in Seed.*

[FROM THE YANKEE FARMER.]

Every intelligent agriculturist who gives the subject a thorough examination will find that farmers in general can make great improvements by procuring new and valuable varieties of seed. Every one should give a strict attention to this business, and learn all new hinds that are brought before the public, and so far as they appear to be suited to his soil and climate, he should endeavor to obtain seed and make experiments. One farmer may have wet lands, and he may read of some grass or other vegetables well adapted to it, another may hear of something well suited to his mellow light soil, and so on, almost every new or improved articles in terraculture, is well adapted to the situation of some farmers and will prove beneficial to them, and some are of general utility.

In most cases when new productions come before the public highly extolled, they have some claims to superiority, and are worthy of experiment, but in general, in such cases, when farmers do not possess superior opportunities for information they would better be cautious and buy sparingly of new articles, and make experiments in a small way; for when experiments are made on a large scale and prove to be unsuccessful, they are discouraging, and sometimes they are attended with losses, that lessens a farmer's means, as well as his disposition to make future trials.

Some farmers may try new kinds of seed, and for want of knowledge to enable them to manage properly, they may fail. In making experiments with productions with which he is not acquainted, a farmer should first obtain the best possible information as to the mode of culture, and in case of a want of success in the first attempt, he should vary his management and persevere until a fair and thorough trial is made. Sometimes farmers may have their expectations raised so high with some new production that has been *cracked up* too much by those benefited in a sale, that they have but a poor opinion of it, when they find their hopes are not realized, though the new article may be pretty good and will prove to be a valuable acquisition.

It is ascertained that any valuable variety of fruit will degenerate after a long course of time, and that new ones must be originated by a cross fertilization with another variety. So it probably is with plants in general; they arrive to their highest state of improvement and will then degenerate in spite of all efforts to keep up their superiority. And when no care is taken to prevent a depreciation in plants, they may soon become poor and comparatively worthless. The best seed and

the best plants should always be selected with a view of making improvement if possible, if not, for the purpose of preventing or retarding degeneracy.

When new articles are introduced to the notice of farmers and gardeners, they are usually dependant on those who have them for sale, for information as to their value, and the love of gain sometimes leads men to exaggerate, and in some cases men who stand high in society, who are well known and confided in, will, from their enthusiasm, when highly pleased with something new, extol it beyond due bounds, and thus become the innocent cause of deception.

But all the discouragements that offer themselves to the farmer in trying new things in his line, are very light compared with the great advantage he obtains in case of a successful experiment. A man may obtain ten or twelve new varieties of seed, and pay twenty-five cents for each kind, and should all but one prove unprofitable, that may be of sufficient value to pay for more than the cost of seeds and expense of experiments. Besides the advantage of experiments in testing the nature of new articles, the farmer becomes more observant from every experiment he makes, which leads him on to further inquiries and improvements, and prepares his mind for the reception of knowledge from every available source.

As to the method of improving seeds or producing new varieties of fruits and plants, we may say something in the proper season to attend to these things. Now is the time for the cultivator to look around and see if he cannot obtain some other kinds of grain, grass, fruit and other vegetable productions superior to those he now cultivates. This subject is of the highest importance and should receive more attention, and it should be attended to early, that every thing may be ready for seed time. Many farmers think that they will make improvement in this way, but they neglect it till the time of sowing and planting, and then they have not an opportunity to attend to it, so they go on in what they do not consider the *good* old way.

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## *What have the States severally done to Encourage Agriculture?*

[From the Journal of Productive Industry.]

*"Grains of sand the mountains make."*

Maine, with a population less than 400,000, last year gave $76,000 to her citizens engaged in agriculture, out of her public treasury, as a bounty on wheat.

A bill was recently introduced into the Legislature of New-York, appropriating $20,000 for the promotion of agriculture and the household arts. This bill proposes a premium of $500 for the discovery of an efficient remedy for the grain worm, an insect now doing much damage to the wheat crops in the North-Eastern States—the formation of a museum containing complete sets of mineralogical and geological specimens—premiums for improved agricultural implements, and superior crops; and last, though not *least*, it authorizes the State Board of Agriculture, which it creates, to procure as many copies of the "Cultivator and "Monthly Genesee Farmer," as there are common

school districts in the State, and furnish one copy of each to each school district, to be used as occasional class books.

Indiana has established a scientific and agricultural college.

Georgia passed an act at the last session of her Legislature, to "Incorporate the Board of Agriculture and Rural Economy, of the State of Georgia."

Massachusetts has undertaken an agricultural survey of the State; and a proposition was recently submitted to her Legislature, to give a bounty on wheat.* This State has given a bounty on silk produced by her citizens.

The Legislature of Maryland, a few weeks since, had a proposition before it to establish a *pattern farm* and agricultural schools.

Kentucky is organizing a State Board of Agriculture, or State Society.†

The Legislature of Michigan lately had the subject of establishing State and county Agricultural Societies before it.

Maine has given a bounty of five cents on each pound of cocoons raised in the State, and fifty cents for each pound of silk reeled in the State.

Connecticut gives a bounty of one dollar for each one hundred mulberry trees of five years growth, and fifty cents on each pound of reeled silk, the growth of the State.

Vermont gives a bounty on silk of ten cents on each pound grown in the State.

Pennsylvania gives a bounty of twenty cents on each pound of cocoons, and fifty cents on each pound of reeled silk, the growth of the State.

The Congress of the United States propose to give the President the power to lease any unappropriated lots in the District of Columbia, for the term of ten years, for the encouragement of the cultivation of the sugar beet, and the production of silk.

Should this policy be carried out by each State, our citizens will not long continue to eat foreign bread, and our country will regain her usual prosperity. This is our remedy for the *pressure—encourage production.*

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## *Facts and Calculations illustrating the Importance of the Silk Culture.*

[FROM THE FARMER AND GARDENER.]

We find the following article, on a subject of much importance, in a late number of the "Camden Mail." We commend it to general perusal as it possesses an interest which should be participated in by every one who has a wish to improve his fortunes.

*Mr. Editor*,—In my last communication, I promised to furnish some *facts* to show that very great improvements may be made by changing a portion of the agricultural and manufacturing products of this country. Perhaps your readers will say that my first looks

* This proposition was not only *submitted*, but was *accepted*; and a law passed accordingly.----*Courier.*

† The State Society is organized and the Committee on Agriculture will report a bill to the Kentucky Legislature in a few days, for the establishment of an Agricultural School.----*Ed. Franklin Farmer.*

well in theory, but assertion is not argument; and will still doubt its practicability. Will you, Mr. Editor, be so good as to lay before them some extracts from a report of a committee to a meeting held in Philadelphia in 1837, at which the establishment of a company for the production and manufacture of silk was resolved upon.

The committee say, "The periods of the year in which the silk-worm is fed, and when only the attention of the farmer and his family is required for their care and management, are those in which the usual labors of the farm are, for a great portion of those periods, not very great; and the large amount of the attention and industry which are required by silk worms when feeding and making the cocoon, are most properly furnished by females, and children from twelve to sixteen years old. In the winter season, the family fire-side of the farmer, now comparatively without employment, may be engaged in reeling the silk from the cocoons, a most agreeable and profitable occupation for that part of the year."

"A large amount of free labor will be brought into employ, and the domestic silk trade of the North will one day rival that of cotton, rice, and tobacco at the south." "Three thousand good cocoons make one pound reeled silk; at that rate, the reeling being done at the manufactory, the silk will cost about three dollars per pound. When cocoons are produced in abundance, the committee are disposed to believe that at twelve cents per pound, the raising them will be as profitable as the raising of cotton at 15 cts."

"The estimate is made with confidence, that an establishment for the manufacture of silk into plain and ordinary articles, will cost no more than about one-eighth of a cotton factory, to turn out the same number of dollars worth of work; and with equal, if not greater profit."

"The present prices of raw silk are, Bengal, $5 25 to $6 per lb.; China $5 50 to $6; Italian $6 60 to $7 per lb."

"Floss and sewing silk, made from Bengal silk would cost—raw material, say $5 25 cents,—dying, manufacturing and waste, $1 50 per lb. of 14 oz.—$6 75. These articles are now worth—sewing silk $10 to $11; Floss 11 to 12."

"The amount of sewing silk used in the United States is immense. To manufacture enough of this article to supply the demand, almost any amount of capital could be employed with little cost of machinery. It has been ascertained, one year to be 35,000 dollars."

Dr. Lardner estimates the annual quantity of silk used in England alone, at more than four millions of pounds of weight. Owing to the humidity of their climate, they are obliged to purchase this vast amount abroad; the amount of silk used in the United States would soon quadruple even the vast quantity now used in England were it to become generally an article of domestic manufacture.

We will turn our attention to a communication of Robert Sinclair, published in the Farmer and Gardener, and the remarks of the Editor thereon. The substance of Mr. Sinclair's communication is, that from the first year's growth of the morus multicaulis "he raised from cuttings of one bud each, about three inches long, per acre, 10,080 pounds of leaves, the first season from cuttings—and a large portion of these leaves were produced in season for feeding the second crop of worms."

The Editor remarks thereon, that as 1000 lbs. feed 201,600 worms, and as 3000 worms will make a pound of silk, so will the aggregate make 67 1-5 lbs. of silk.

## *Effects of the Silk Bounty.*

[FROM THE SILK CULTURIST.]

It will be recollected that the Legislature of Pennsylvania, at its last session passed an act for the encouragement of silk culture. The provisions of the law are not only liberal but munificent, in regard to the bounty offered, but highly creditable to the enlightened legislators of that respectable State. The continuance of the law is limited to five years, one of which has nearly expired. The salutary influence it is exerting has been noticed by every friend of silk culture in the country—and not only noticed but admired by every friend to the prosperity of our common country. It would be interesting and useful to give, in statistical detail, the present state of this new branch of industry in that State, compared with its condition a year ago, but we have neither the data nor the time to go into it at present. If some of our Pennsylvania friends would collect the facts, and give them to the public through the medium of the silk publications, they would be found highly interesting to the community generally, and make a valuable document for the inspection of the Legislatures of other States.

The subject of encouraging silk culture by government, will be before the Legislatures of several of the States during the present winter—especially those of New York, Maryland, Ohio and Indiana, and it is important that they be in possession of all the information in relation to it. It is an easy matter for us to lay before them ingenious theories on silk culture—we can consider all their objections, and silence all their answers by argument, but they will still cling to their prejudices, and excuse themselves from promoting it on account of its being an experiment; an utopian project, which may and may not succeed. Driven into this corner, as we always shall be, and perhaps ought to be, we shall feel the want of more ammunition, and unless we have it in reserve, shall be compelled to quit the field in disappointment, if not in despair. In a dilemma like this, we must abandon arguments and resort to facts, and if we have these at command, we can plant ourselves on ground from which neither legislative ignorance or prudence can dispossess us. That facts enough exist to convince every skeptical legislator that it is his duty to foster silk culture in this country, no one acquainted with the subject will dispute: but the collection and presentation of them requires labor which but few are willing to discharge. There are now facts enough, even in the State of Pennsylvania, to put to flight the formidable host of legislative and congressional opposition, were they brought to bear upon their strong holds, and the only question is, shall they be collected, embodied and applied, in a respectful but at the same time, decided manner.

Viewing the subject in this point of light, we cannot avoid indulging the hope that our friends in Pennsylvania will bestir themselves in this matter. In so doing, they would not only perform a valuable service to the cause in which they are so zealously engaged, but set an example to those of us similarly engaged in other States, worthy of our imitation. In the meanwhile, we make the following extract from the message of Gov. Ritner, which speaks volumes on the subject. The project he suggests, of introducing silk culture into poor-house establishments, is practicable, and would be found a cheap method of defraying their expenses. The labor of the inmates of our

alms and work-houses, is well adapted to the business, and we have no doubt they may be made not only to sustain themselves, but yield a revenue to the communities to which they belong.

"The encouragement given to the growth of the mulberry tree and the production of silk, has thus far proved efficient, and promises to include the silk business among our chief subjects of industry and sources of wealth. Many hundred thousand of mulberry plants have been set out, and a large quantity of cocoons produced. The reeling of silk has been regularly practised at many places, and silk looms established at Philadelphia and Economy, in Beaver county. The business seems to have gained such a footing among us as to promise permanence and profit. It seems to be a branch of industry admirably adapted to the habits and strength of the inmates of our country poor-houses. It is worthy of inquiry, whether a slight encouragement, say a small donation annually to the steward of each institution who shall produce a given number of cocoons, might not have the effect of substituting a light and pleasant employment for the more laborious occupations in which the paupers are now engaged, and accelerate the permanent establishment of the business in the State."

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## *The Properties of Flowers.*

[From the London Horticultural Journal.]

The advancement of florculture has always been an object of the first importance with us. We have taken more pains with it than with any other branch of horticulture or gardening, because it would be followed with advantage by a larger class, and by persons in all grades of society. The Horticultural Journal has paid great attention to the properties of flowers, with a view of teaching the amateur what is necessary to render him a successful exhibiter, and confirming the more experienced, but perhaps wavering, professional gardener in some fixed principles. It is desirable that all persons should be united upon the value of fancy flowers, and, of course, upon the standard of perfection by which such value shall be estimated. The Metropolitan Society has done more towards fixing this standard than all the Horticultural and Floral Societies put together. The rules laid down by that Society have been followed, or professed to be followed, by almost every establishment deserving the name of Floral or Horticultural, in the kingdom, and it has been of great service to the science. The properties of flowers were, at one time, valued by no set rules of propriety, by no consistent attribute of beauty. The whims and fancies of particular individuals pronounced particular points estimable, without considering whether such points increased the splendor of a flower; whereas the points insisted upon by the Metropolitan Society, without a single exception, increased the beauty of a flower even to ordinary eyes. Thus it was that roundness and flatness in the bloom of a pansy were said to be the standard of perfection; place side by side a pansy of the old shape, and one nearly approaching the circle, unbroken through the petals, overlapping each other and tolerably flat, the most unpractised eye will see the richness of one compared with the other, and though there are none quite round or quite flat, there are many which approach both, and they are the more valuable in proportion to their near approach. Again, the properties of the dahlia are equally well defined, the nearer the shape approaches two-thirds of a ball the

better. Every body can understand this definition of the property of a dahlia. It is true, that to become this form, the petals must be broad, round ended, short, and imbricate well, free from notch, plenty of them, and the centre not over bloomed; but these are details. If the flower be two-thirds of a ball, the detail is sure to be good, for if the petals be narrow or pointed, or long, the flower cannot be well formed. A tulip has been equally as well defined as to property, and very fortunately, for the flowers which were bearing high prizes were perverting the taste of the growers; and it will take some years to correct it. Nevertheless, the rule laid down by the Metropolitan Society cannot be mistaken. The desired form, when expanded, is from one-third to one-half of a hollow ball, forming, as a matter of course, a perfectly round shallow cup; for, as the beauty of a tulip is in the inside, no other form will so well display it. The tulip must, however, possess one quality without which it will be now set down as valueless. The white or the yellow must be of one uniform shade or tint, without stain, to the very centre. In this case, as in the other, the most ordinary observer, who may know nothing about tulips, shall, nevertheless, in a moment decide the clear round flower is more beautiful than one that is stained or not round. Upon this principle should the value of all such productions be estimated. We do not mean that every body should be able to appreciate all the points of a good flower; but that the leading ones, especially the form, should be that most likely to please the world. The auricula is a flower equally requiring a proper estimation of properties, and equally indebted to the Metropolitan Society for published rules by which to regulate them. The chief point here again is *form*. To be quite round and quite flat, like a counter, would be perfection; but here the colors form a much more important feature than in other flowers, for the auricula will come all green like a calix, or all white and mealy, without any distinct colour. It has been, therefore, necessary to state that there should be several divisions of colour; the small tube in the centre should be bright yellow—the circle round this perfectly white—the next circle should be a distinct colour, lilac, violet, purple, blue, brown, or dark approaching to black, and very unbroken—and the outer circle of all green, grey, or white; and in proportion as all these form distinct circles, and the individual pips are flat, &c., does the value of the flower increase. There is another property estimated in London and its vicinity more than in the country. The Metropolitan Society consider it a leading property that the auricula should form a bold truss of seven pips or flowers at the least; in the country they do not require more than five. Thus many flowers will do for the country that would not do in the metropolis.

In roses, novelty seems to have been the leading point, and many growers have discovered novelty where nobody else could; but there are properties as essential to a good rose, as to any other flower, novelty forming one of them. A rose should be strongly perfumed—the petals should be thick, round, and plentiful; the color bright, and the flower double; the more of these properties possessed by a rose, the better it is. Hundreds, however, are in cultivation so nearly resembling each other, so nearly approaching to single, so weak in their perfume, and so straggling in their growth, as to make every amateur who has purchased largely repent truly that he has been governed by fine names, instead of fine qualities. Geraniums have come in for their share of attention as to properties. The majority of them have petals so narrow, that, as there are but five, they divide and form an irregular

star; they ought, like the heart's-ease, to be wide enough to lap over each other, and form a whole and nearly circular flower, rather compunulated than otherwise. These ought to come in trusses, comprising at least six or eight blooms each, and forming good close heads. Bright colours, novel pencilling, and deep dark spots on the upper petals, are in great esteem; but the best at present, for form and style of growth, is Dennis's Perfection, though the colour is deficient. Others asserted to be *as well formed* and *better colored*, are said to have been raised and coming out, if not out already, and indeed we have observed several bright and good flowers very closely approach it, but we confess we have not seen any fully up to the point; and though, as we have said before, the coloring is deficient, we have not seen any one so complete in form of flowers, beauty of truss, and general style of growth. The principal object we have in view here is to show that, in the estimate of properties by the Metropolitan Society of Florists, regard is had to those points which please every body; that in fact, taken in any way, an ordinary flower placed by the side of a flower approaching the standard of perfection, if down, shall appear inferior to ordinary observers, that the properties estimated as valuable to the connoisseur shall enlist among its admirers all persons of taste, whether florists or not; and when we resume this subject to go into details, we shall be able also to show, that there is a good reason to be made apparent to common observers, for every point esteemed by the society as essential to a good flower. In tulip growers we have observed more whimsical notions than among any other class of florists. But such is the advantage, of setting even the experienced cultivator upon a right course, with regard to the properties of flowers, that there are sorts which bore a great price now hardly cared for, and others which bore no price at all gradually becoming favorites. The uncertainty of the bloom will always render the possession of a bed of flowers a source of anxious pleasure, because there are varieties usually stained at the bottom, and therefore worthless, but which sometimes come very clean and fine, and they are then grand beyond description. Nine times out of ten a *Siam* will beat a *Louis*, but the tenth time the *Louis* may come without its usual stain at the bottom, and then it is a sight worth travelling miles for. But a Louis has never won at the Metropolitan Society's shows, and we doubt if it ever will, because, if one does happen to come clear, which is not twice in a century, we might as well persuade a grower to cut off his own head as to cut his bloom to exhibit, *Pompe funebre*, a valuable or rather a *high-priced* flower, is certainly a worse flower than Polyphemus, in every stage, from blight to perfection, and as a single flower in competition, it will not create a moment's doubt. The Metropolitan Society's rules would enable a man, who never saw flowers, to judge which was the best, and there is no small difficulty, when old cultivators are selected for judges, to keep them from giving the prizes to dear flowers instead of those of good properties. These, however, are difficulties easily got over, and we conlude for the present by congratulating the general cultivator of flowers upon the great advantages derived from coming to a general understanding upon what are esteemed the real properties of flowers.

## *Utility of Agricultural Papers.*

[FROM THE FRANKLIN FARMER.]

*Mr. Editor*,—I was not aware until lately, that any man or set of men, except a certain religious sect, ever claimed to have arrived at perfection. Whether this is possible in religious matters, where the whole that can be known is contained in the divine record, and where every rule for the guidance of your conduct is to be found in the sacred volume, I cannot pretend to say; but in temporal matters where we have to be guided by the light of experience furnished us by feeble and erring men like ourselves, whose *opinions* are frequently given instead of ascertained *facts*—whose diversified tastes and pursuits cause them to see the same things in very different ways, and whose very assertions must be taken "*cum grano salis*." I am very certain, labor as we may, that we will stop very far short of perfection; for although the truth be contained in the recorded experience of men upon any subject, it is surrounded by such a mass of falsehoods, that we have great labor in tracing it out and have at least to trust much to our own judgment and discrimination to decide which is truth and which falsehood. But he who rejects the lights of science because they are fallible or not as clear as they might be, goes from one extreme to the other, and voluntarily grovels in total darkness because he cannot enjoy the splendor of the noonday sun.

No doubt, Mr. Editor, you are beginning to wonder what all this has to do with my telling you, that some people think themselves infallible and that they know so much they can be taught nothing more about their business or pursuit. I shall therefore detain you no longer and come at once to the point. There are many farmers who pretend that they cannot be taught any thing by agricultural papers or by other farmers, and indeed I have known some of sufficient effrontery to deny their having ever been mistaken; a common excuse with them for declining to subscribe for an agricultural paper, is that it cannot teach them any thing, and that they put no faith in book farming. Do you not think this looks very much like sitting up a claim to infallibility and to having advanced, to the "*ultima thule*" in agricultural knowledge? The ancients were equally certain that they were acquainted with the whole earth, but time has shown that they know not the half, and so it will be with the farmer, when he begins to seek for more information he will find that he knew almost nothing, and in the day of his boasting might well have been compared to the Gopher, occupying a mound about the size of a half bushel in the midst of a large prairie, claiming the occupancy of the whole and an acquaintance with its utmost branches because he can peep at the distant horizon from the top of this little mound.

I am aware that the force of prejudice is hard to overcome with men generally, but with none more so than your old fashioned farmer, to whom any thing like innovation is particularly obnoxious; but I do not despair of their being led to see the true light, if the proper course is pursued by agricultural papers; the first step is to get them to listen or read, and this can only be done by perseverance and constant importunity—even the *unjust* judge listened to the widow "not by reason of friendship but by her importunity, and we do not think the obstinacy of the farmer proceeds from injustice. It will not do to run "full but" against their preconceived notions; your course must

be oblique and insinuating, and your tone conciliating, but never lose sight of the proposed end; "*suaviter in modo sed fortiter in re*" should be your motto, which if faithfully and perseveringly followed, will hardly fail of attaining the assent of even the most prejudiced. Some years after the horizontal system of culture had been adopted in the hill lands of Virginia, and was found to be the only means of preventing the light sandy soil from being totally washed away, I knew an old gentleman who persisted in ploughing up and down hill. notwithstanding he saw the daily deterioration of his lands while his neighors were improving; and the reason he gave for it was this, "it was wrong to keep the water on the sides of the hills and prevent its going where God intended it should." Now laughable and foolish as this may seem, he was just as fixed in the notion as any farmer is in what may appear to him perfectly rational, and yet many of their notions are equally absurd and cannot be sustained with any more plausibility. It is perfectly clear that direct opposition or ridicule would not have moved the old man; you had as well expect to take a fort, bristling with cannon, by the use of the battering ram or small arms instead of sapping and mining.

One of the strongest prejudices which has to be encountered, is that against book farming, which has been produced by agricultural writers dealing too much in theory, separate and apart from practice, which, when tested, proved to be utterly false; they theorize and then draw what they suppose to be truth from the theory, instead of premising facts and theorizing as to their rationale: hence I would advise that an agricultural paper endorse nothing as true which has not stood the severest tests of experience and trial.

There are but few men who will deny that the wealth and prosperity of our country depend mainly upon the success of the farming interest, and fewer who will own that they do not wish the farmer well, thereby forfeiting their claim to patriotism; this being granted, those who have the means and do not subscribe for an agricultural paper can have but two reasons for not doing so—

1st. That although it contains truth it can teach them nothing.

2nd. That it does not contain profitable matter, and therefore they will not aid in its circulation.

Now I think it can be successfully shown that either of these should be a direct inducement for them to subscribe. As to the first, they will hardly deny that there are some farmers who do not know all that may be found in such a paper with which it is useful to be acquainted; they must either admit this or give every one credit for an equal degree of information with themselves, which they will hardly do—or it may be that others know enough and they too much; if so I would recommend a paper as a good safety valve through which to vent their superfluous knowledge. Therefore if they are philanthropists or even wish well to themselves and other farmers, how can they show it more plainly than by subscribing for a paper which, according to the proposition, will at least enlighten some, and if it do not profit themselves directly it will indirectly, for I contend that no man can continue to do any thing beneficial to society without in some way sharing the advantages derived therefrom; one of the best features in the social compact is, that the whole cannot reeeive benefit or injury without the participation of the individual members, and vice versa: Æsop proves this in his fable of the "Belly and other members,"

And moreover, if they have poor neighbors who cannot afford to subscribe they can lend to them and thereby enlighten and expand their

minds as well as teach them the best methods of cultivating and preserving the soil. Several instances have come under my own knowledge, of persons refusing to take an agricultural paper on the ground that it could teach them nothing, who at last consented to do so "by reason of importunity" and confessed they were more than paid the subscription by two numbers, and that they were convinced of the ridiculousness of rating their *individual* knowledge and experience above the combined information of *all* the contributors to such a paper; for although each one should contribute but a mite, the aggregate might be very great, and even the wisest may profit by the accidental remark of a fool.

If the second proposition be true, it should be their pleasure as it certainly is their duty to subscribe, and contribute to the columns of the paper, truth instead of error, and profitable matter instead of unprofitable.

If any farmers desire more knowledge and in endeavoring to obtain it will read such papers, those who know them to contain error should certainly remove those errors and give the world the advantage of their successful practical methods of cultivation, &c., instead of permitting the young or ignorant farmer to be stuffed with *nonsensical book farming*. If, however, they fear that the printing of their methods will convert them into book farming, they can easily avoid such a catastrophe, by reading the paper to see what errors it is propagating, and then harangue the people on the true faith. reviving the days of Academus, and rendering our beautiful woodland pastures still more attractive by their pastoral and agricultural orations, and perhaps leaving behind them a name which shall be enrolled on the annals of fame among those of the greatest benefactors of mankind!! Now, Mr. Editor, if you can only get some of these overwise gentry to agree to this matter, all that you have to do is to get at once to publishing some doctrine peculiarly obnoxious to them, and you will be (little as you ever expected it) instrumental in doing great good, and have the credit of bringing before the world men, the brilliant flashes of whose intellects announced by the thunders of eloquence, will completely purify our agricultural atmosphere—do Mr. Editor!!

But badinage aside—it will not do for them to say that every farmer must learn for himself as they did, for although an *individual* may profit by a purely selfish course, if it become general—and they are setting the example—the effect will be totally disorganising and ruinous to society. Men are naturally remiss in the performance of their duty, and others may say and do as they do until the young beginner in agriculture will have no one to give him information, unless he gets on his horse and visits all the old farmers in the country, many of whom would either refuse to talk or write, or contradict each other, until he would go back in despair—all this is obviated by a paper which brings every man's views, if not his person, to the fire-side of the seeker—and keeps them on record ready for reference instead of taxing the memory—brings different views of the same subject into comparison, and elicits discussion—is a record for *ascertained facts* which prevents each individual from wasting his time in testing by trial the many ways recommended (by word of mouth) of doing the same thing; and in fine is the best means of arriving at something like truth, which may be used by future generations after the writers have passed beyond the grave.

I am astonished to hear farmers say they cannot afford to pay three or four dollars for a paper, when I see those same men frequently

wasting thrice the amount in a week's gratification, whereas the paper will entertain them for a year, and profit them for their lifetime. How many pay ten times the amount in the course of the year for sensual indulgences, and think that it is no waste of money? Any one may sell all the surplus of his farm, and then by a little economy find he can spare something which will pay for a periodical. If they have children intended for agriculturists the benefit to them will be immense, in giving them a taste for reading, it expands their minds—and where they see some process recommended different from that which they have been accustomed to, it sets them to thinking and experimenting even in their childish days. The duties are however reciprocal, and the editor and publisher of papers should not labour merely for gain, their views too should be philanthropic, they should have the good of the people at heart, and the more their subscription list increases, the more they should endeavor to disseminate *truth*, and give an equivalent to the subscriber for his money—and by the by, he who subscribes without *paying* is not only depriving the printer of the just wages of his labour but lessens his means of informing the public mind, thereby injuring society, and is of course a bad citizen.

As my last communication ran somewhat in this same vein, I fear I shall get the *sobriquet* of Monsieur Tonson. I care not, for if I could make myself heard as the veritable Monsieur was, the Kentucky farmers should never rest until they put their shoulders to the wheel and gave at least one shove towards getting our agricultural wagon out of the mud and mire of ignorance and prejudice, and place it on the high road of improvement and preferment.

CLODHOPPER.

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## *Duties Performed by a Good Farmer.*

[FROM THE FARMER'S CABINET.]

The approach of winter always induces the thoughtful, careful, and industrious farmer to look about him to see that he is prepared to meet so boisterous and inclement a season of the year in the best possible manner. His windows, his doors, and the roofs of his buildings, are all examined, and if necessary, made tight and secure. His barn and stables are looked to and put in good order. His sheep, hogs, and poultry have all comfortable, dry lodgings prepared for them in due season, for he knows that no animal can thrive and do well that is not well housed and well fed, and every way made clean and comfortable. His potatoes, his sugar beets, his turnips, and all his winter fruits and vegetables are well secured against frost, and placed in such positions that ready access can be had to them when necessary, without subjecting them to danger of injury by exposure to the weather. His fuel is so arranged and prepared for current use, that his family can procure it without any unnecessary exposure to the rude blasts of winter. His fields and meadows are kept closed during the winter and early part of spring, so that animals may not be permitted to ramble over them and injure his grounds. His barn yard is so arranged that his cattle never leave it during the period of winter feeding, by which means he saves all their manure for the nourishment of his crops. His implements of husbandry and tools are all carefully housed and arranged in good order, so that they can be had

when wanted for use. His garden, in which not a weed has been permitted to perfect and scatter its seed during the autumn, is thrown up into ridges about eighteen inches high, separated only by trenches extending from end to end of the beds; this he knows exposes to the meliorating influence of the frost, destroys the grubs and worms which seek refuge during the winter deep in the ground, and induces the ground moles to look for dryer and warmer lodgings elsewhere. By this plan of ridging his garden in the fall, as soon as the frost is out in the spring, his beds are dry and warm, and admit of being levelled and worked at once, long before flat, wet ground, can with propriety, be moved by the spade; this enables his family to have a supply of garden vegetables several weeks earlier than those who have less intelligence or industry: the deeper tilth and more thorough pulverization of the soil, also increases the growth of his plants, and enables them the better to protect themselves against the contingencies of either very dry or very wet seasons.

During the evenings that are now growing long, his wife and daughters are industriously engaged in light but necessary household duties, while the boys are reading instructive, useful books, and among them the Farmer's Cabinet occupies a conspicuous place, both on account of its variety and its practical utility. This furnishes texts for rational and improving conversation, which cultivates and improves their minds and warms their affections, and produces on them even a greater effect than ridging and trenching the garden does on the vegetables.

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## *Tomatoe.*

[FROM THE SILK CULTURIST.]

There is perhaps no vegetable of equal value so little known and cultivated in this country, although we are happy to observe that it is rapidly coming into notice. There is no vegetable easier produced, none that better rewards the labors of the planter.

It has been in use as an article of luxury, either raw or stewed, in soups or fricasees, for gravy or catsup, for pickles or sweetmeats, in the southern part of the European continent. In France and Italy, as well as in many of our eastern cities, the tomatoe or love-apple is highly relished and extensively employed in various culinary preparations. They are esteemed by all, salutary as an article of diet, and I am acquainted with some instances among my acquaintance, and with many others through the medium of different publications, in which the free use of them was followed by rapid and permanent convalescence from disease of the liver. Indeed as a dietetic luxury, its utility is so great and so varied, that few who have once adopted its use, can be prevailed upon to dispense with it.

The tomatoe plant is a native of the tropical parts of our continent, but will flourish in our latitude on a good soil with very little expense of time and labor. The plant of the larger varieties grows luxuriantly and bears enormous quantities of fruit. It is stated by the Ohio Farmer that a man near the city of New-York received $1,800 for the tomatoes he produced from half an acre, in 1836. They may be produced from the seed in the open air on a warm soil, but in order to have them in season, and the fruit fine and well matured, the seed should be started in a hot bed, and transplanted as soon as the weather

will admit. If you sow the seed in the open garden, let it be done as early in the spring as may be without endangering the young plant to injury from frost. Sow in rows, or plant in hills about two, two and a-half, or three feet apart, according to the size of the variety, or the fertility of the soil. If they come up too thick, thin them out. Three or four stalks are sufficient for each hill. Keep free of weeds, and stir the ground occasionally, and they will grow with great rapidity. As the plant is of the trailing kind, they will require to be supported on a frame of some kind when the branches become so large as to settle on the ground, in order that the fruit may more fully be exposed to the sun and air. Such exposure will greatly promote the perfection of the fruit. A few hills on a rich soil will supply a small family. From seven hills of the large red tomatoe, cultivated last summer on a black muck wheeled into my garden, I picked one and a-quarter bushels of fruit.

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## *Culture of the Dahlia.*

[FROM THE SILK CULTURIST.]

Place the roots in a hot-bed the 1st of April to start the buds; let them remain until the first of May, when, if all danger of frost is over open the bed, and you will find a number of buds have pushed from the head of each tuber, and some from the base of the stock—then separate the buds, taking a small portion of each, every one of which will become a flowering plant the same season. Transplant them into a fine, loose, rich mould. Give them a southern aspect, and water them well every evening, and they will produce a beautiful show of large blossom and splendid colours, commencing in July, and continuing in flower until cut off by the frost. Their growth is very rapid, attaining the height of from four to six feet, and branching in every direction. Staking them is necessary, else the high winds in the fall will make sad havoc among their long and tender branches.

The best method of staking is, at the time of transplanting, to drive one stake the probable height of the plant, in such position that the plant may be bound firmly to it, place two others about half the height of the first, and from eight to ten inches distant from the plant, in such manner that hoops may be passed around the whole, forming a strong frame-work for the protection of the lower branches. The stakes will soon be concealed by the foliage of the plants.

As soon as they are done flowering, cut the plants to within about one foot of the ground; with a digging fork turn the roots out, shake the earth from among the tubers, lay them in some airy place protected from the frost until dry. Label each with the colour and height, and lay them away in a warm dry cellar, or closet. Examine them occasionally during the winter, and if found damp and mouldy, wipe them carefully and remove them to a less humid place of deposite.

New tubers may be obtained every year from cuttings of any choice varieties.

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## *Improvement.*

[FROM THE MAINE FARMER.]

In what situation can we more clearly discover the improvement of the present generation, than by looking into the school-room, the work-shop, and the field of the farmer. In the former, instead of the dry and dreary books of Morse, Murray, Walsh, &c., which pupils were required to commit to memory page after page, we find the black board, the orrary with other apparatus with which instruction, under the direction of a skillful tutor, can be conveyed with a hundred times greater facility, with delight to the pupils and pleasure to the instructor. In looking into the workshop we find instead of a hundred hands, each tugging with their whole strength to perform an operation, the steam engine, or water power which performs the same work with greater accuracy and precision, and at an eighth part of the expense. From this, let us turn our eyes upon the field of the farmer, and we find instead of the clumsy wooden plough, a neat cast iron one, and that all his other implements met with an equal change; and in the performance of all the operations about his farm, a correspondent improvement has been made. What has brought about all these changes? What has effected such vast changes in every branch of industry? The minds of scientific men have been enlightened with the principles of true science, and have been led to impart them through the medium of the school house and the lecture room, to the productive classes, who have brought them into useful operation. Men are becoming more intelligent—they are beginning to see that education and science are useful in the successful management of the common concerns of life. In fact, science itself which was once considered a preeminent exception from manual labor, has descended to the very *dung hill*, and is elevating the operations of the husbandman to the highest grade in society.

Many of the colleges and higher seminaries of learning in various parts of our country are attaching farms to their institutions and giving their students instruction in scientific agriculture.

We have received a catalogue of Henry and Emory college at Glade Spring, Va., which has a farm of about six hundred acres. There has recently been established in this institution a professorship of agricultural chemistry and scientific farming, which is to be filled by a practical scientific farmer, and hereafter the students will receive instruction not only in the science but also in the practical operations of agriculture. It is intended also, to erect workshops, where various branches of mechanical work will be performed. Thus, at this institution, the students will have an opportunity to rest their minds from their intensity of studies, while they apply their bodily energies on the farm and in the work shop; and by this means will secure and retain healthy constitutions, sound and vigorous minds, and make greater progress in their studies, than they would if their minds were kept in constant application.

## *Animalculæ.*

Professor Hitchcock, in a letter presenting some geological facts respecting certain regions in the western parts of Massachusetts, adds the present interesting postscript.

"Some of your readers may be gratified if I mention a discovery of some scientific interest which I have made within a few days past; they have all, doubtless, heard of those minute living beings discovered by the microscope in stagnant water, &c., and called *animalculæ*, millions of which live in a single drop. But until very recently, who would have supposed it possible that the skeletons of these animals would be found preserved in the soils and the rocks! Yet there is a white and a light substance, very common in Massachusetts, beneath the mud and swamps, which I find to be full of these fossil skeletons! And it is curious that if care be taken in placing the substance beneath the microscope, these skeletons will generally be found to be entire, although so thin that the light passes through them so as to render them almost invisible. The only species I have noticed has the shape of the common *angel worm* or *earth worm*, and it would take hundreds of thousands of them, probably millions, to take up a cubic inch. Yet the deposite that contains them is probably two-thirds composed of their remains, and in many places it forms a stratum several feet thick, covering many acres, and may be found, I doubt not, in every town in the State. I happened to have specimens only from Andover, Bridgewater, Barre, and Pelham, all of which contain the relics.

"In Europe it has recently been found that several rocks of considerable thickness (among which are flint and opal) are made up chiefly of animalculæ. Indeed, the famous Prussian naturalist, Ehrenberg, has determined twenty-eight fossil species, nine of which are extinct, and the others correspond to the living species. Of these is the polishing *slate*, (a variety of rotten stone.) Ehrenberg says—"About 23,000,000 of these creatures would make up a cubic inch, and in a cubic inch there would be 41,000,000, weighing 220 grains; the silicious shield of each animalculæ weighs about the 187,000,000th part of a grain. The fossil animalculæ of the iron ochre is only the twenty-first part of the thickness of a human hair; and one cubic in this ochre must contain *one million* of skeletons of living beings."

# PART III.

## MISCELLANEOUS INTELLIGENCE.

*Application of Marl.*—On reading the last No. of the Cabinet, I perceive that your readers in the lower part of Delaware and the eastern shore of Maryland, where the green sand or marl abounds, are desirous of being informed of the best mode of applying it as indicated by the experience of our New Jersey farmers. It may perhaps save those who are inclined to try it, some trouble and expense to be informed that every known method of application seems to have been resorted to; and that which has been found to answer best, is to use it as a top dressing on sward or grass grounds; the effect is immediate and great, being scarcely to be believed excepting by those who have been spectators to its effects. The quantity applied to an acre of good marl, is from six to twenty tons; a bushel weighs about a hundred weight—of course a ton is about twenty bushels; more may be applied without any apprehension of injury, but from twelve to fifteen tons per acre is a good dressing, though some have applied twice that quantity. Spread it evenly over the surface of the grass ground in the fall, winter or spring, or whenever you have most leisure, and when done you need not give yourself any further trouble about it; nature will do the rest, and your reward will be certain and great if your marl be good. Whenever you plough down your grass ground which has been thus marled for corn, or any other crop, you will see the effect of it strikingly exhibited in the subsequent crops. It has frequently increased the fertility of the soil more than ten fold, and some crops are believed to be much improved in quality as well as quantity by its application.

The great weight of the marl causes it to sink in the earth, and if it should be ploughed in on its first application, there is some danger of losing part of the good effects of it, by its being placed too remote from the roots of the plants intended to be nourished by it.

It is now agreed on by all, that the fertilizing ingredient of this valuable substance is potash, and the benefits derived from its use are directly proportioned to the quantity of it contained in its composition.—*Farmer's Cabinet.*

*Silk Culture.*—From a communication of Lemuel Cobb, in the N. E. Farmer, it appears that Messrs. Cheney of Connecticut, raised silk at the rate of 50 lbs. to the acre, from the first years growth of the morus multicaulis, planted in layers. Dr. Lardner, the Editor of the Cabinet Cyclopedia, in his history of silk, states that it proved "not only practicable, but profitable in Connecticut, where land was comparatively high rented, but where careful and intelligent white laborers might be procured." Here then is evidence enough combined to convince the most sceptical, not only that it can be produced, but that by substituting the cultivation of the mulberry tree for some of our comparatively small crops, we might receive in nett profit, at least ten fold. If from cuttings we may the first year raise 50 lbs. of silk, in the after years we may generally raise 100 lbs., as we may then gather two crops of leaves in one season. This, as has been shown by prices of foreign silk, would be from 425 dollars to 700 dollars per acre, or in sewing $1000, two-thirds of which must be nett profit. I ask, again, farmers, *why* do we import or buy 25 or 26,000,000 dollars worth of silk per annum? Why not supply our own market? Why not, instead of gazing at a few nabobs with their "gold shining through their *silken purses*," see our entire population of all ages, sexes and classes, as well clad, as those yellow shiners; or as "in the widely spread region of China, where all from the Emperor on his throne, to the peasant in his lowly hut, are indebted for their clothing to the labors of the silk worm;" and why not do something toward supplying the foreign market?

*Ancient Silk Culture in America.*—In looking over an old work printed in London in 1775, we met with the following fact:—

"It is a truth," says the writer, "that about 10,000 lbs. of cocoons was, in August 1771, sold at the *public* filature in *Philadelphia*, and that the silk produced from the native worm is of good quality, and has been much approved of in this city."

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We insert the following with unmingled feelings of pleasure, and sincerely think that those patriotic gentlemen—Messrs. Jenks & Ramsburg—deserve the thanks of the community in which they live, and to whose citizens their good example will, we are sure, prove a lasting benefit.

*Silk Stockings.*—We have been shown a specimen of a pair of fine silk stockings made of the raw silk raised by Messrs. Jenks & Ramsburg of Frederick, during the past season. It is with unwonted pleasure that we note this demonstrative evidence of the possibility of propagating to advantage the mulberry and silk raising in this vicinity. The fineness of the material, the beauty of its colour and texture, and its softness and elegance, are only exceeded by the superiority of the workmanship which has converted it into so even and elegant an article. Dr. Jenks might boast of his silk, but certainly Mr. Ramsburg has more cause to exult on account also of the beautiful domestic workmanship which has been exhibited in its fabrication.—*Fred. Herald.*

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*Swamp Muck for Manure.*—Haul out swamp muck upon dry sandy or gravelly soils, and our word for it you will receive ample compensation, whatever your crop may be, whether of grain or grass, or roots. A farmer informs us that by way of experiment, he hauled a few loads of swamp muck upon grass land of gravelly soil, where, on account of its lightness, but very little grass had before grown. The result was, that a great difference could be seen throughout the season until the grass was cut; herdsgrass grew to double the height of that where no muck was spread, and some of the heads were of the astonishing length of ten inches! The difference in the growth of the grass he does not attribute so much to the strength of the muck, as to the greater radiation of heat on account of its extreme black surface, whereby the grass was brought forward some two or three weeks earlier in the season than it would have been, had no muck been spread upon the land. The determination of the cause, however, is not of so much consequence as the fact that important results were produced by the application. The muck was spread upon the land to the depth of about two inches. Let those who have the means extend the experiment and make known their success.—*Windham Co. Democrat.*

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*Yankee Ingenuity.*—The whole world must ere long acknowledge the superiority of Yankee ingenuity, and already many portions of it have tacitly made the admission, by the employment of American mechanics in the superintendence of mechanical business. Gen. Tallmadge, in a letter from St. Petersburgh, remarks that the foreman of the principal machine factory at Manchester, (Eng.) is an American from Providence; and the principal manufacturer employed by the King of Prussia is a native of Baltimore. Henry Eckford was for a long time the master ship-builder for the Sultan of Turkey; and we saw stated a few days since that several elegant buggies have been exported to England from Newark, (N. J.) Two inventions which are considered as the greatest improvements of the age, are the fruits of Yankee ingenuity—the machine for making the weaver's reed, invented by J. A. Wilkinson, of Rhode-Island, and the "self-regulator" to the power-loom, invented by A. Stone, of the same State. But in point of ingenuity, we believe nothing can exceed the stock machine invented by Gen. Harvy, of this village, and now in successful operation in the manufacture of stock frames. Added to this, his machine to manufacture screws; his coining apparatus, and various others of minor importance, exhibit mechanical skill of the highest order. Wherever our ingenuity and enterprise extend into foreign countries, an evidence and conviction of our greatness goes with them; and the non-recoiling rifle of young Cochran made Mahmoud of Turkey exclaim, "if American *boys* can do this, what cannot their *men* do!"

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*Plastering Old Apple Trees.*—Hovey in his Horticultural Magazine, (and by the way, this is one of the best Magazines in the world) quotes a paragraph from a foreign Journal, respecting covering the wounds and cavities in large and old apple trees. Gen. Higonet of France, covers these with mortar every year. Where the cavity is large, he puts in stones, and sometimes the cavities are so large as to take in a bushel; then by covering over with mortar, the rains and insects are kept out; the process of decay stopped or retarded and in many cases a healing process produced.—*Maine Farmer.*

*Premium on Silk.*—An act has passed the Legislature of Delaware, allowing a premium of fifteen cents per pound, for cocoons raised in the State, and fifty cents per pound for raw silk reeled from such cocoons. The law is to continue for four years, and incorporated silk companies are to be excluded from its benefits.

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*Remedy for Sprains, Bruises, &c.*—As it frequently happens that severe swellings occur from bruises, sprains, &c., I take the liberty to send you a recipe which has, in various instances within my own sphere of observation, produced the most rapid and extraordinary relief. It was tried a few days ago, upon the foot of a gentleman who was suffering agony from a violent sprain and afforded instantaneous relief. I have used it with great success in dispelling fistulous swellings upon horses. It has never with me failed to reduce the swelling unless pus had formed. Its simplicity has caused it to be rejected by some, but as it can do no harm, and as the materials are at hand, it can at least be tried. It is a mixture of one pint of soft soap, a pint of good vinegar, a handful of common salt, and a table spoonful of powdered nitre; put them into a common white basin, and bathe the part affected. I have never used it where the skin is abraided, as most probably violent pain would ensue. T. F. NELSON.

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*To Preserve Fresh Meat,*—killed early in winter, through cold weather, bury it in snow; the best way is to place alternate layers of meat and snow in a tub or barrel, and keep it in a good place. The meat should be a little frozen first. Several days warm weather will not affect it; and if kept in an ice house, it may be not only preserved through winter, but curing the following spring.

Hams cannot be kept with ease or certainty unless the flat bone, near the centre of the inner side which joins on the other bones of the ham by a ball and socket, be first carefully removed. Where this has been neglected, although every other care has been taken, failures and loss has followed.

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*Easy method of Purifying Water.*—Take a common garden pot, in the midst of which place a piece of wicker work, on which spread a layer of charcoal of four or five inches in thickness, and above the charcoal a quantity of sand. The surface of the sand is to be covered with paper pierced full of holes, to prevent the water from making channels in it. By this process, which is at once simple and economical, every person is enabled to procure limpid water at a very trifling expense.

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*To remove the Contagious Vapors arising from the Beds of the Sick*—Remove the sick and other persons from the room; set a tea-cup or galipot on the floor, half filled with table salt—pour in strong sulphuric acid, and the room will be filled with muriatic acid gas—after a few minutes open the windows, and the air of the room will be purified.

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*Feeding Horses with Grain.*—The proper quantity of the respective kinds is regulated by weight, for in this proportion are the different kinds considered nutritious. As for example, we give to a horse per day, half a bushel of oats, the weight of which is 17 lbs., and if we wish to change to other grain, as barley, rye, or Indian corn, the same weight will suffice; and as these grains are much heavier than oats, a proportionate less quantity by measure, will suffice. Another rule deemed important is this, that whenever heavier grain is substituted for oats, a quantity of fine cut straw should be added as a substitute for the husk of the oats. This induces a more perfect digestion of the grain.

Oats are more beneficial to horses if ground; and hay, if chopped fine.

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*To preserve a Horse against Botts.*—Take of bee's wax, mutton tallow, and sugar each 8 ounces, put it into one quart of warm milk, and heat it until it all melts and mixes; then put the whole into a bottle, and just before the wax, &c. begins to harden, give it to the horse. Two or thre hours afterwards give him physic.

*Another method.*—Give a horse occasionally a half pint of hard wood ashes mixed in his grain and sprinkled, or given in his drink. This is an excellent remedy.

*Another.*—Give your horse salt freely—as that will, in nine cases out of ten, preserve him from the botts. If he is attacked by them, give him a quart of warm fish brine; and if the case be a bad one, repeat the dose once an hour. For this purpose, save your *fish brine.—Farmer's Receipt Book.*